CITY OF MANCHESTER.

REPORT

ON THE

Health of the City of Manchester,

1909.

BY

JAMES NIVEN, M.A., M.B.

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PUBLIC HEALTH OFFICES,
TOWN HALL, MANCHESTER,
July 11*th*, 1910.

MY LORD MAYOR, ALDERMEN, AND MEMBERS
OF THE COUNCIL.

I have the honour to present to you my Annual Report on the Health of Manchester for the year 1909.

The birth-rate is the lowest on record. So also is the death-rate. The infantile mortality for the year is considerably lower than in any previous year.

To this result the increased attention given to the welfare of mother and infant by Medical Practitioners, the excellent work done by the Department of Elementary Education, the increasing efficiency of the Health Visitors, the growing influence of the Mothers' Guild, the improvement of the Milk Supply, the work already done under the Children Act (halting and imperfect as it has been), the guidance of the District Nurses, the careful instruction imparted to Midwives, and the baby shows, have all contributed.

Under the head of infectious disease I have to note the excessive prevalence of Scarlet Fever, and attention is directed to an outbreak of Scarlet Fever due to milk in Crumpsall, on which a special report is made. The outbreak was practically over before effective action could be taken, but is none the less instructive.

No further improvement in the death-rate from Phthisis is recorded. This is largely owing to the exceptional number of persons who came from outside, were admitted into the Union Hospitals, and died there. In the division of North Manchester, which is not much under this influence, is mainly industrial, and includes large areas of very poor persons, the death-rate reaches the low figure of 0·89 per 1,000. This is in all probability largely due to the work done under the scheme of voluntary notification. The fact that women and children show a greater reduction in recent years in the death-rate from Tuberculosis than do men appears to point in the same direction.

The time has arrived when notification should be made obligatory, while in other directions also a forward movement is needed. Your attention is called to the section dealing with this disease.

Great and steady advance is being made in respect of housing, and the substitution of water for other closets. The complete disposal of refuse in destructors should engage the attention of the Cleansing Committee.

During the year 1909 the women's lodging-house has been in progress.

The next few years, it may be anticipated, will witness great advance under the Town Planning, etc., and other Acts.

The statistics for 1909 show a further reduction in the proportion of Tuberculous milk sent into the City.

The report fails to deal with many matters which are enumerated in the report of the Sanitary Committee, but which are of importance. These have not come more immediately under the direction of the Medical Officer of Health, or do not lend themselves to an annual summary.

The report of the Midwives Supervising Committee shows continued improvement, though we have to regret the resignation of the able Executive Officer, Dr. Margaret Merry Smith.

The results hitherto attained may be regarded as fairly satisfactory. But we may now look forward to a gradual reduction of the death-rate, which one hopes to see as low as 14 per 1,000. To that end great efforts still need to be made.

I have to record the loss of our Statistical Clerk, Mr. Roos, from a very painful malady. This has been a serious loss to the office, and I desire to record my obligation to him for much assistance.

The considerable amount of work done is due to the hearty and willing co-operation of the various officials employed in the sanitary service.

I have the honour to be, My Lord Mayor,

Your obedient servant,

JAMES NIVEN,

Medical Officer of Health.

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ANNUAL REPORT.

STATISTICAL.

The following are general statistics for the year 1909:—

Area of the City in acres			19,059
Estimated population at the middle of 1909	Males	313,889	654,584
	Females	340,695	
No. of persons per acre			34
No. of inhabited houses at the Census taking, 1901			121,688
No. of uninhabited houses at the Census taking, 1901			9,525
Total No. of tenements			125,875
No. of tenements at the Census taking, 1901, 4 rooms and under			62,749
Average No. of persons at the Census taking, 1901, in houses of 4 rooms and under			4·27
Persons married per 1,000 of population in the Manchester, Chorlton, and Prestwich Unions			15·38
Births in the City of Manchester	Males	9,152	18,016
	Females	8,864	
Annual birth-rate per 1,000 of population			27·52
Deaths	Males	5,926	11,589
	Females	5,663	
Annual death-rate per 1,000 of population	Males	18·88	17·70
	Females	16·62	
Deaths under 1 year of age per 1,000 births			135·6
Excess of registered births over deaths			6,427
Estimated increase of population during the year			5,738
Annual birth-rate exclusive of Moss Side and Withington			28·51
„ death-rate „ „ „			18·39
Infantile mortality per 1,000 births			140·2
Percentage mortality occurring in public institutions			29·59
The mean death-rate in 1891-1900 was			23·27
„ birth-rate „ „ „			33·09

On the preceding page will be found the usual statistics for the year 1909 placed at the commencement of the Medical Officer's Annual Report. The birth-rate has resumed its downward course, and is the lowest yet recorded. The death-rate is also the lowest recorded, though by little. The natural increase of the population, however, exceeds in the part of the City exclusive of Moss Side and Withington 10 per 1,000, and is, therefore, as in other years in excess of the estimated increase of the population, and the infantile mortality is decidedly the lowest yet recorded, owing in large measure to the low diarrhœal death-rate in 1909. The percentage of deaths occurring in public institutions unhappily shows a marked increase, owing, no doubt, to the distress prevailing during the year.

From the Annual Summary of the Registrar-General we find that the decline in the Manchester birth-rate corresponds to a decline for England and Wales generally, and that in like manner the death-rate for 1909 was lower for England and Wales than in any previous year. If we refer to the table on page XI. of the Summary we see that only six of the 76 large towns have a higher "corrected" death-rate than Manchester, while only eight have a higher crude death-rate. Nevertheless, the relative position of Manchester is improving. In this comparison, however, we have the advantage derived from the inclusion of Withington and Moss Side. In respect of infantile mortality the position of Manchester is somewhat better than it is in the death-rate at all ages.

We find that as regards death-rate from epidemic diseases, Manchester does not occupy a very unfavourable position, the diseases in which we are most unfavourably placed being Scarlet Fever and Measles. Probably the insufficiency of accommodation for cases of the former disease has had to do with the rise in the death-rate.

The following table illustrates one cause of the distress, viz., the high prices prevailing of flour and coal. Indoor pauperism again increased over the amount witnessed in 1908.

TABLE I.—TOWNSHIP OF MANCHESTER.—PRICES PAID BY THE GUARDIANS FOR FLOUR, BUTCHERS' MEAT, AND COAL, ALSO THE AVERAGE WEEKLY NUMBER OF PERSONS IN RECEIPT OF RELIEF, DURING THE YEARS 1887–1909.

YEAR ENDING	PRICES OF PROVISIONS					PAUPERISM		CITY BIRTH-RATE PER 1,000
	Flour per Sack of 280lbs.	Butchers' Meat, per lb.			Coal, per ton	Average number of Paupers relieved in each week		
		Beef		Mutton	Engine	House	Indoor	Outdoor	
		Coarse	Fine						
1887	25/2 to 30/6	-/3¾	-/6½	-/6½	5/6	8/4	3123	877	33·9
1888	24/- to 29/3	-/3¾	-/6½	-/6½	5/5	8/3	3130	713	33·3
1889	24/11 to 31/2	-/4½	-/6½	-/6½	5/8	8/7	3037	632	33·1
1890	24/9 to 29/11	-/5	-/7	-/7	7/-	9/9	2998	498	31·8
1891	27/3 to 28/11	-/4¼	-/6½	-/6½	8/8	11/2	3118	466	33·8
1892	26/4 to 28/5	-/4	-/6¼	-/6¼	7/6	10/2	3251	551	33·4
1893	21/8 to 25/1	-/3⅞	-/6¼	-/6¼	6/5	10/0	3277	586	33·4
1894	17/2 to 23/9	-/3¾	-/6	-/6	7/1	10/10	3328	395	31·8
1895	15/6 to 21/-	-/3¾	-/6	-/6	5/6	10/3	3343	618	33·4
1896	16/6 to 24/-	-/3⅝	-/5¾	-/5¾	5/7	9/1	3348	533	32·8
1897	17/3 to 33/9	-/3½	-/5⅝	-/5⅝	5/9	8/8	3476	697	32·9
1898	26/7 to 33/8	-/3½	-/5½	-/5½	6/2	8/4½	3519	732	32·3
1899	20/11 to 23/-	-/3½	-/5⅝	-/5⅝	7/5	9/11	3232	597	32·2
1900	20/9 to 22/9	-/3½	-/5½	-/5⅝	11/9¾	14/2½	3189	686	32·4
1901	21/4 to 23/3	-/3⅝	-/5⅝	-/5⅝	11/8	15/2	3403	817	28·7
1902	20/11 to 24/3	-/3⅞	-/5¾	-/5¾	9/3	13/5½	3492	752	33·0
1903	21/10½ to 23/3	-/4⅜	-/6	-/5½	9/-	12/11¼	3521	812	31·7
1904	23/- to 28/6	-/4⅜	-/6	-/6	8/2	11/11	3486	1459	31·1
1905	23/- to 23/9	-/4⅜	-/6	-/6	7/6	10/9	3489	1588	29·0
1906	20/6 to 26/-	-/4¼	-/6	-/6	8/6	11/9	3359	1257	28·9
1907	20/3 to 25/6	-/4	-/6	-/5¼	11/2	14/5	3354	909	28·4
1908	25/6 to 29/6	-/4⅛	-/6	-/5⅜	11/2	14/6	3597	1199	28·9
1909	26/3 to 27/10½	-/3½	-/5½	-/4⅜	9/9	13/3	3875	2049	27·5

The distribution of the deaths occurring in public institutions is shown in the following table. It will be seen that the increase in the number over that for 1908 took place chiefly in the Manchester Workhouse, the Chorlton Workhouse, Monsall Hospital, and the Royal Infirmary.

TABLE 2.—POPULATIONS—DEATHS OF MANCHESTER RESIDENTS, 1909, IN PUBLIC INSTITUTIONS.

Township	Name of Institution	Census Population, 1901	Deaths, 1909
ANCOATS	Ancoats Hospital	90	198
	Workhouse Casual Wards (Tame Street)	185	1
CENTRAL	New Bridge Street Workhouse	176	...
	St. Mary's Hospital	59	79
	Lock Hospital	26	...
	Eye and Ear Hospital	9	1
	Wood Street Mission	18	...
	Chetham Hospital	100	...
	Skin Hospital	...	2
ST. GEORGE'S	Girls' Home (Charter Street)	36	...
CHEETHAM	His Majesty's Prison	1,028	4
	Boys' Refuge	220	...
	Northern Hospital (late Clinical)	50	59
	Jewish Hospital	...	16
CRUMPSALL	Manchester Workhouse	2,767	948
*	Prestwich Workhouse	504	46
BLACKLEY	Booth Hall Infirmary	...	214
	Litchford Hall	231	3
MOSTON	St. Mary's Home	45	2
	St. Joseph's Home	50	...
	St. Bridget's Orphanage	27	...
NEWTON	Monsall Hospital	428	239
	Little Sisters of the Poor (Culcheth Hall)	165	26
CLAYTON	Clayton Hospital	20	15
ARDWICK	Industrial School	204	...
	Nicholls Hospital	96	...
OPENSHAW	Crossley's "Home of Peace"	10	11
RUSHOLME	St. Joseph's Girls' School	176	...
	St. Mary's Home	61	...
CHORLTON-ON-MEDLOCK	Royal Infirmary	274	339
	St. Joseph's Boys' School	418	...
	Royal Eye Hospital	103	...
	Little Sisters of the Poor (Plymouth Grove)	199	24
	Cancer Hospital	14	19
	Home for Young Girls	25	...
	Church Army Labour Home	20	...
	Penitentiary	42	...
	Chorlton Union Offices, All Saints'	...	...
HULME	Cavalry Barracks	489	...
	Loretto Convent	81	...
MOSS SIDE	"The Home," Whalley Road	...	1
WITHINGTON... *	Chorlton Workhouse	2,013	1007

* Proportion only.

TABLE 2 (continued).—POPULATIONS—DEATHS OF MANCHESTER RESIDENTS, 1909, IN PUBLIC INSTITUTIONS.

Township	NAME OF INSTITUTION	Census Population, 1901	Deaths, 1909
OUTSIDE CITY	Pendlebury Hospital	180	55
	Prestwich Lunatic Asylum	2,614	62
	Salford Royal and Hope Hospitals	...	7
	Mauldeth Hospital for Incurables	...	5
	Blackburn Infirmary	...	2
	Workhouse, Eccles	...	1
	County Asylum, Lancaster	...	40
	Birmingham Asylum	...	1
	Blind Aid Society, Pendleton	...	1
	Stockport Union Hospital	...	1
	York Asylum	...	1
	Meathop Sanatorium	...	1
	Bolton Infirmary	...	1
	Derby County Asylum	...	1
	Knutsford Gaol	...	1
	Patricroft, St. Joseph's Home	...	2
	Home for Children, Sutton	...	1
	David Lewis Epileptic Colony	..	2
	TOTAL DEATHS		3,430

The chief causes of death during 1909 were as follows:—

Phthisis	1115	Premature Birth	390
Tuberculosis of Organs other than the Lungs	374	Nephritis and Bright's Disease	272
Diseases of the Heart	1211	Convulsions	104
Cerebral Hæmorrhage, Apoplexy, Hemiplegia	452	Inflammation of the Brain	117
Pneumonia	1306	Diarrhœa and Dysentery	268
Bronchitis	1127	Measles 396; Scarlet Fever 164; Whooping Cough 129; Diphtheria 113	802
Digestive Organs	559	Influenza	135
Atrophy, Debility (chiefly in infants)	457	Malignant Disease	606
Old Age	267		

As usual, Lung Diseases and Heart Disease occupy the premier place. Then comes Phthisis. The most common infectious diseases come next, while Malignant Disease shows a sinister increase.

In the following table the death-rate occurring in each of the sanitary districts is shown, is compared with the mean death-rate in the same districts for 1891-1900, and is divided into portions according as the deaths have occurred at home, in Union Hospitals, or in other institutions.

It is impossible not to be struck by the apparently great improvement shown last year in the districts of Harpurhey, Bradford, West Gorton, and Clayton.

In all probability this improvement is connected with the disappearance of the midden privies from those districts, though one year is insufficient to build a positive statement upon. Nevertheless, the same improvement was manifest in the previous year, and each year adds to the likelihood of its stability.

As regards the proportion of deaths occurring in public institutions, between one-half and one-third of all deaths in persons residing in the Manchester township took place in public institutions; in North Manchester about one-fifth, and in South Manchester between one-third and one-quarter; in Chorlton-on-Medlock and Hulme the proportion exceeded one-third.

TABLE 3.—1909.—DEATH-RATES* IN THE HOMES OF THE PEOPLE, IN WORKHOUSES, AND IN HOSPITALS FOR THE VARIOUS DIVISIONS OF THE CITY.

STATISTICAL DIVISIONS		Estimated Populations to middle of 1909	Death-rate per 1000 of persons dying in their own homes	Death-rate per 1000 of persons dying in Workhouses	Death-rate per 1000 of persons dying in Hospitals	Total death-rate per 1000	Mean death rate 1891–1900
City of Manchester. ...		654,584	12·46	3·39	1·85	17·70	23·28 ‡‡
I. Manchester Township..		123,765	14·14	7·62	2·74	24·50	30·04
II. North Manchester		202,846	11·56	1·32	1·51	14·40	18·31
III. South Manchester		327,973	12·39	3·07	1·72	17·19	22·24
I.	Ancoats	43,139	15·09	6·44	3·31	24·85	30·37
	Central	24,172	11·67	10·55	3·10	25·32	30·98
	St. George's	56,454	14·47	7·26	2·14	23·88	29·46
II.	Cheetham	43,024	8·48	1·14	1·56	11·18	14·50
	Crumpsall	9,483	11·18	1·37	0·84	13·39	15·48
	Blackley	9,937	16·30	1·61	1·51	19·42	17·95
	Harpurhey	24,546	9·94	0·94	1·02	11·90	19·01
	Moston	22,413	8·92	0·22	1·20	10·35	14·11
	Newton	39,423	14·20	1·93	1·93	18·06	19·55
	Bradford	25,503	14·74	1·80	1·65	18·19	23·36
	Beswick	12,679	13·88	1·89	2·05	17·82	20·30
	Clayton	15,838	9·85	1·01	1·33	12·19	17·18
III.	Ardwick	45,841	11·57	3·03	1·90	16·49	21·73
	Openshaw	29,247	15·56	2·29	1·68	19·52	21·67
	West Gorton	32,699	11·59	2·60	1·16	15·35	21·52
	Rusholme and Kirk....	27,325	12·70	1·43	1·61	15·74	16·05
	Chorlton-on-Medlock ..	55,190	11·69	4·73	2·16	18·57	21·34
	Hulme	61,890	15·08	5·32	2·38	22·77	25·42
	Moss Side.....	28,717	12·57	1·50	1·25	15·32	...
	Withington.....	47,064	8·80	0·96	0·96	10·71	...

* In this table, *every death* occurring in a Public Institution has been referred to the District from which the patient originally came.

‡ Exclusive of Moss Side and Withington.

The chief sources and the amounts of gain and loss in the death-rate for 1909 when compared with the average for the ten years 1899-1908 are shown in the following figures. The greatest gain for the year was under Diarrhœa, though a substantial advance was shown under Tubercular Disease. Under Respiratory Disease other than Phthisis marked improvement is exhibited, Substantial gains are also shown for the year under Whooping Cough, Nervous Diseases, and Diseases of the Digestive System. As Nervous Diseases includes the term "Convulsions," it is probable that the two last-named sources of gain are connected.

The amount of loss is small compared with the gain, yet the diseases under which the number of deaths has increased are all well in the public mind at present, viz., Measles, Scarlet Fever, Cancer, and Heart Disease.

The aggregate gain for the year was 1·4 per 1,000.

Gains in 1909 *per* 1,000 *persons living, as compared with the average for the* 10 *years,* 1899-1908—(See Table K).

Influenza	0·02
Whooping Cough	0·19
Diarrhœal Diseases	0·82
Puerperal Fever	0·01
Erysipelas	0·01
Phthisis	0·11
Tubercular Diseases (other)	0·15
Alcoholism	0·08
Rheumatic Fever	0·01
Premature Birth	0·03
Nervous Diseases	0·27
Bronchitis	0·19
Pneumonia	0·13
Respiratory Diseases (other)	0·07
Digestive System	0·10
Old Age	0·01
Total	2·20

Losses in 1909.

Measles	0·16
Scarlet Fever	0·10
Enteric Fever	0·03
Pyæmia	0·01
Cancer	0·10
Heart and Blood Vessel Diseases	0·13
Urinary Organs	0·01
Total	0·54

Balance of Gain from above Causes	1·66
Do. All Causes	1·40

These rates are exclusive of Moss Side and Withington.

Death-rates at Different Periods of Life.

(*a*)—Infantile mortality :—

The number of deaths occurring within twelve months of birth out of 1,000 births sub-divided for different portions of the first year are as under.

Marked improvement is shown in 1909, which is specially conspicuous after the first three months of life. No doubt this was largely due to the low Diarrhœal incidence on this year.

The percentage of total infantile mortality occurring in the first three months of life is decidedly increased, as it always is when Diarrhœal mortality is low.

The number of deaths per 1,000 births, viz., 136 if Withington and Moss Side be included, 140 if they be excluded, is the lowest yet recorded.

The most conspicuous improvement is in South Manchester.

Infantile Mortality.

Deaths per 1000 *births at the ages* 0–3 *months,* 3–5 *months, and* 6–11 *months, in successive years.*

Years	Months of Age			
	0–2	3–5	6–11	Under 1 year
1891–95 (mean)	82·79	40·99	62·97	186·75
1896	78·71	38·11	59·31	176·13
1897	82·31	42·43	69·89	194·63
1898	86·64	42·72	66·51	195·87
1899	88·14	46·49	70·79	205·42
1900	81·42	42·42	64·91	188·75
1901	88·90	42·96	66·60	198·46
1902	73·49	32·23	45·73	151·45
1903	79·91	36·37	52·25	168·53
1904	84·37	42·01	60·34	186·72
1905	78·42	34·05	46·28	158·75
1906	78·65	35·77	54·68	169·10
1907	73·91	30·46	43·07	147·44
1908	76·20	30·09	46·16	152·45
1909	73·20	25·37	36·98	135·55

Percentage of total infantile mortality occurring in sections of the first year of life for triennial periods from 1891 *to* 1908, *also* 1909.

Years	Ages			
	0–3 months	3–6 months	6–12 months	Average rate of mortality
1891–93	44·9	21·6	33·5	190
1894–96	43·8	22·2	34·0	180
1897–99	43·1	22·1	34·8	199
1900–02	45 3	21·8	32·9	178
1903–05	46·7	22·1	31·2	173
1906–08	46·5	21·2	32·3	169
1907	50·1	20 7	29·2	147
1908	50·0	19·7	30·3	153
1909	54·0	18·7	27·3	136

(*b*)—Death-rates in Groups of Ages :—

The death-rates in different age groups for the whole City, at six groups of ages, are shown in the following table for a series of years :—

Death-rates in Age Groups, 1891–1909.

Year	All causes	Under 5 years	5–14 years	15–24 years	25–44 years	45–64 years	65 years and upwards
1891	25·97	86·6	4·80	5·65	13·93	40·4	134·2
1892	23·22	78·7	4·59	5·37	12·06	35·9	114·4
1893	24·35	86·3	4·73	4·94	12·51	35·3	121·7
1894	19·93	66·5	3·97	4·52	11·16	29·5	100·9
1895	24·68	90·7	4·67	5·19	11·92	35·9	116·0
1896	22·53	80·4	4·08	4·89	11·22	33·3	110·9
1897	22·58	85·3	3·94	4·54	10·24	32·4	109·9
1898	21·49	78·1	3·55	4·14	10·80	32·0	104·1
1899	24·22	87·5	4·22	4·86	11·80	36·4	118·6
1900	23·79	78·3	4·21	4·63	12·52	39·7	119·4
1901	21·60	74·5	4·44	4·40	10·48	34·2	106·0
1902	20·03	64·7	4·12	4·39	10·26	33·8	99·2
1903	19·45	69·5	3·71	4·05	8·99	29·7	97·5
1904	20·89	75·8	3·71	4·15	9·40	31·3	109·5
*1905	18·74	61·9	3·75	3·87	8·77	30·3	104·9
†1905	17·82	59·2	3·51	3·65	8·24	28·6	99·4
*1906	19·90	69·3	3·97	3·51	9·49	29·9	111·3
†1906	19·00	66·6	3·67	3·37	8·94	28·3	105·5
*1907	18·74	58·6	3·17	3·51	9·16	32·1	112·7
†1907	17·89	56·2	3·04	3·39	8·64	30·6	105·1
*1908	18·8	62·1	3·45	3·49	9·12	30·8	107·9
†1908	18·1	60·0	3·37	3·38	8·59	30·0	103·3
*1909	18·4	54·1	3·99	3·50	8·83	31·8	112·3
†1909	17·7	52·1	3·86	3·38	8·36	30·1	113·9

* Exclusive of Moss Side and Withington.

† Inclusive of Moss Side and Withington.

Spite of the high death-rates from Scarlet Fever and Measles the death-rate at ages under five years is low in 1909 when compared with previous years. At the next age group, however, there is no improvement over recent years, nor is there any at ages 15 to 24, although the ground gained is held. But at ages 25 to 44 there is in 1909 a still further gain. At higher ages the death-rate is somewhat higher than in other recent years.

The great advance which has been made in recent years is not confined to any part of the City. It is, however, greatest for North Manchester, as the following figures will show :—

TABLE 4.—SHOWING THE REDUCTION IN THE DEATH-RATE FOR ALL AGES, AND AT SIX AGE PERIODS FOR EACH OF THE MAIN DIVISIONS OF THE CITY SINCE THE YEAR 1891.

Death-rates at all ages and at six age periods—Manchester Township.

Year	All Ages	0–4	5–14	15–24	25–44	45–64	65+
1891–1895	29·82	100·08	5·45	6·05	16·74	46·49	144·66
1904–1908	25·59	86·57	4·26	4·49	13·11	40·32	119·23
1909	24·50	71·31	4·69	4·86	13·10	41·81	130·16

South Manchester, exclusive of Withington and Moss Side.

Year	All Ages	0–4	5–14	15–24	25–44	45–64	65+
1891–1895	22·13	76·85	4·09	4·92	11·33	32·64	113·51
1904–1908	19·27	63·84	3·47	3·55	8·41	28·61	107·02
1909	18·61	55·51	4·09	3·49	8·93	31·10	120·42

North Manchester.

Year	All Ages	0-4	5-14	15-24	25-44	45-64	65+
1891–1895	19·04	65·06	4·03	4·48	9·27	27·48	105·15
1904–1908	15·44	51·18	3·07	3·21	7·07	25·25	98·28
1909	14·40	42·50	3·48	2·73	6·13	25·59	106·62

The incidence of mortality in Manchester according to age and sex is further set out in the table on page 12, which shows the death-rates in 12 groups of ages, and at all ages, for males and females respectively. As usual, the male death-rate is considerably higher than the female at all ages, and the excess is specially marked in the middle periods of life. Between the ages of ten and twenty, however, the female death-rate is in excess. We should anticipate that at a period when much distress was experienced, as in 1909, the worst effects would, on the whole, be felt by mothers, and consequently that the death-rate in females would be relatively increased.

Whether this be the true explanation or not, it is the fact that the difference in the male and female death-rates is considerably less in 1909 than in other recent years, as is seen from these figures :—

Annual Death-rate.

	Male	Female
1905	19·45	16·31
1906	20·65	17·47
1907	19·52	16·40
1908	19·87	16·47
1909	18·88	16·62

We observe that the male death-rate has diminished, while that of females has increased. The suggestion presents itself that there may have been a decrease in males present in the City during this year.

TABLE 5.—ANNUAL RATES OF MORTALITY IN MANCHESTER IN THE YEAR 1909 AT TWELVE GROUPS OF AGES AMONGST PERSONS—MALES AND FEMALES.

GROUPS OF AGES	PERSONS			MALES			FEMALES		
	Estimated Population	Deaths	Death-rates	Estimated Population	Deaths	Death-rates	Estimated Population	Deaths	Death-rates
All Ages	654,584	11,589	17·70	313,889	5,926	18·88	340,695	5,663	16·62
0 —	74,663	3,893	52·14	37,197	2,064	55·49	37,466	1,829	48·82
5 —	66,985	334	4·99	33,279	170	5·11	33,706	164	4·87
10 —	64,537	173	2·68	32,331	71	2·20	32,206	102	3 17
15 —	65,530	207	3·16	31,431	98	3·12	34,099	109	3·20
20 —	70,068	251	3·58	32,388	125	3·86	37,680	126	3·34
25 —	116,411	695	5·97	55,197	398	7·21	61,214	297	4·85
35 —	83,679	978	11·69	40,453	544	13·45	43,226	434	10·04
45 —	58,108	1,288	22·17	27,801	706	25·40	30,307	582	19·20
55 —	34,726	1,507	43·40	15,798	769	48·68	18,928	738	38·99
65 —	15,387	1,472	95·67	6,385	680	106·50	9,002	792	87·98
75 —	4,153	671	161·57	1,524	261	171·26	2,629	410	155·95
85 +	337	120	356·08	105	40	380·96	232	80	344·83

Birth-rates in different Sanitary Districts.

If we compare the birth-rates for 1909 or 1908 with those for the same districts in 1891-1900 we see that considerable changes have occurred. The most conspicuous is the general diminution in the rate. In the earlier period the mean birth-rate was 33·09, while in 1908 it was 28·89, and in 1909 27·52 per 1,000 of population.

Ancoats and St. George's have now as then the highest birth-rates in the township. In North Manchester, Bradford and Beswick still have the highest birth-rates, but Harpurhey has sunk from the third to a very low place.

In South Manchester, Openshaw and West Gorton have lost their premier positions, which is now taken by Hulme, Rusholme, which was formerly lowest, now coming second.

The largest diminutions in 1909 are in Ardwick of nearly 9 per 1,000, in West Gorton of 7·8 per 1,000, Ancoats 5·6, St. George's 5·25, Harpurhey 15·31, and Bradford 6·12. On the other hand the Rusholme birth-rate has increased by 6·47 per 1,000. On the whole, the chief reduction has taken place in the industrial parts of the City, a fact much to be deplored.

It has been an article of belief that the highest birth-rates are to be found in the poorest districts. The distribution of the birth-rate in 1909, with the notable exceptions of Rusholme, Central, and Chorlton-on-Medlock, would appear to bear out this view. The natural rate of increase for 1909 is almost exactly the same as in the period 1891-1910.

The highest natural rate of increase for 1909 is in North Manchester. Of individual districts the following in order show the highest natural rates of increase :—Beswick, Rusholme, Moston, Cheetham, Clayton, Bradford, and West Gorton.

The illegimate rate in 1909 was 3·9 per 1,000, the highest rates in individual districts occurring in Chorlton-on-Medlock and Central. These exceptional rates, however, are partly accounted for by the presence of lying-in institutions in the districts. North Manchester has a very low illegitimate birth-rate.

Death-rates in Divisions and Districts of the City.

The death-rates in the main divisions of the City are shown on Table E. Their order and relative magnitude do not differ from those for other recent years. The death-rate at all ages is 24·50 for the Manchester Township, 18·61 for South Manchester, excluding Withington and Moss Side, and 14·40 for North Manchester. By reference to Table 3, it will be seen that these death-rates correspond to the amount of poverty prevailing in the respective districts. The great decrease which has taken place in the death-rate of each district has been pointed out in previous reports.

The death-rates at all ages in the individual districts are given in Table 3 for 1891–1900, and in Table G in the Appendix.

In this table are shown the percentage improvements in the death-rate in 1909 as compared with the years 1891-1900. It will be seen that the death-rate of the whole City is better by over 20 per cent., while the individual districts in which the greatest decline in the death-rate has occurred are Harpurhey, Moston, West Gorton, Clayton, Ardwick, Cheetham, and Bradford.

With the exception of Ardwick and Cheetham, these were till lately midden privy districts. This striking change may probably be ascribed to the substitution of water-closets, with the attendant improvements.

These remarks apply, of course, only to one year. But an examination of the figures given in the Annual Report for 1908 will show that they were applicable also to that year.

In the same manner we may compare the infantile mortalities in districts for 1909 with those for the average of the ten years immediately preceding. It will be seen from Table H that the reduction in 1909 amounted on the old City to about 35 per 1,000. Much of this reduction was due to the diminution in Diarrhœa, which is a function of the season. It is, however, probable that no small portion of the reduction in Diarrhœa is itself due to alterations within the City, though how much time only can show.

The reduction was marked in every district in the Manchester Township. In North Manchester it was conspicuous in Crumpsall, Harpurhey, Moston, Bradford, and Clayton. In South Manchester it was most conspicuous in Rusholme, West Gorton, Chorlton-on-Medlock, and Hulme, though well marked in every division.

In Blackley there was an increase, due, probably to an under-estimate of the population. In Beswick also there was an increase, possibly connected with the presence of the Holt Town Works in the district.

In all the districts in which middens prevailed, and have been replaced by water-closets, the reduction in infantile mortality is conspicuous. These include Crumpsall, Moston, Harpurhey, Bradford, Clayton, Openshaw, and West Gorton.

In 1909 as many as three of the districts in North Manchester and also three in South Manchester had rates of mortality below 100 per 1,000 born.

The very marked diminution in the central districts may be to some extent due to the work of the Health Visitors.

Registered Causes of Death.

We may first consider the causes of death for the whole City. The death-rates at all ages from a number of causes are shown in Table K for the whole City and for each of its main sub-divisions.

The unsatisfactory character of such a table when it is used for comparison of death-rates from particular causes with those pertaining to other localities or to the same locality at a previous epoch has often been pointed out.

Measles is most fatal at the age of two years, Diarrhœa and Whooping Cough in the first year of life. Tubercular Phthisis is a disease of adult life. Pneumonia has two periods of greatest prevalence, at the commencement of life and at ages 25–64. Bronchitis, Heart Disease, and Cancer are most fatal in old age. Hence, if we are dealing with populations widely differing in age constitution a comparison of death-rates for all ages may be very misleading. For example, in the case of Phthisis, a disease the incidence of which falls with special severity on middle life, it is evident that if the proportion of adults to young children increases, and the incidence of Phthisis on different ages remains the same, the effect will be to increase the Phthisis death-rate. It is in spite of this relative increase of adults that the Phthisis death-rate is diminishing, and the fall would have been greater had the birth-rate remained constant. The same remarks apply to Bronchitis, Heart Disease, and Cancer, and to a lesser extent to Pneumonia.

On the other hand, and for the same reason, the death-rates reckoned on all ages from Diarrhœa, Scarlet Fever, Measles, Whooping Cough, and Diphtheria are smaller than they would have been with a constant birth-rate.

It is with this reservation that we may compare the death-rates from different causes at all ages in 1909 with those holding in the previous ten years.

We find that the death-rates from Measles, Scarlet Fever, and Enteric Fever were above the average, while from Diarrhœa, Whooping Cough, and Diphtheria they were below the average. From Phthisis the death-rate was below the average, as it was from other classes of tuberculous disease. A marked diminution is witnessed in respect of deaths from Alcoholism, Diseases of the Digestive System, and Diseases of the Nervous System. A slight diminution is to be noted under Pneumonia, Bronchitis, and other respiratory diseases, as well as from Premature Birth. On the other hand, under Cancer and Diseases of the Heart and Blood Vessels there is decided increase.

From Table J we obtain a view of the mortality experienced from various causes in the first year of life for the whole City, and for each of its main divisions.

The most important causes of death in the first year of life are Lung Diseases, Atrophy, etc., and Premature Birth, then Diarrhœa, and after these Tuberculosis, Measles, Convulsions, and Found Dead in Bed. In 1909, Whooping Cough exacts a comparatively small death-rate. The mortality from Wasting and Premature Birth is somewhat lower than in the two previous years, while that from Measles is higher. From Lung Diseases it is lower than in 1907 and 1908, but higher than in 1904 and 1905.

Under Diarrhœa and Convulsions there is a marked reduction. Tuberculous mortality is about the same as in 1907 and 1908, but lower than in previous years. Under the heads of "Suffocation" and "Found Dead in Bed" there is a decided increase.

Causes of Death at Different Age Periods.

Table M permits a very summary review of the classes of disease from which different periods of life suffer.

At ages 0–4, children suffer from a great number of causes. The most fatal is Lung Disease. But a heavy tribute is also exacted by Measles, Diarrhœa, Tubercle, Diseases of the Digestive and Nervous Systems, Whooping Cough, Scarlet Fever, and Diphtheria.

At school ages 5–14, Tubercle exacts the heaviest tribute, followed by Lung Disease, Scarlet Fever, and Measles.

At ages 15–24, Tubercle is the cause of nearly one-third of all the deaths, followed at a long distance by Lung Disease.

From 25 to 44 years of age Tubercle causes the heaviest mortality of individual causes of death, and to this one disease is attributed more than one-fourth of the mortality. Diseases of the Lungs and of the Heart now cause a large number of deaths, and together are responsible for more than one-quarter of the deaths.

At ages 45–64, Diseases of the Heart and Blood Vessels come first, causing over a quarter of the mortality, while Respiratory Diseases are credited with nearly a quarter. The death-rate from Tubercular Disease has now greatly increased in absolute magnitude, but is relatively smaller. Diseases of the Nervous, Digestive, and Urinary Systems are now responsible for considerable sections of the death-rate. Malignant Disease now exacts a mortality equal to that due to Tubercle.

At ages above 65 Heart Disease and Respiratory Diseases predominate, but Malignant Disease now comes third.

In order to give a clearer view of the causes of death in respect of which improvement or the reverse occurred in 1909, Table M has been extended by the inclusion of the average death-rate for each period of life from a number of causes over the ten years 1899–1908.

We thus see that in infancy (0–4 years) there was an increase of the death-rate in respect of Scarlet Fever, Diphtheria, and Enteric Fever, but that the slight increases of the death-rate accruing from these sources was much more than counterbalanced by the marked declines in respect of Whooping Cough, Diarrhœa, Tuberculosis, Nervous Diseases, Heart Disease, Respiratory Diseases, and Diseases of the Urinary System.

At school ages (5–14) there was an increase of the death-rate in 1909. Increases occurred under Measles, Scarlet Fever, Enteric Fever, Tuberculosis, and Lung Disease, while diminution was observed under Diphtheria, Diseases of the Nervous System, Heart Disease, Diseases of the Digestive System, and Diseases of the Urinary System.

At the age period 15–24 years marked decrease is found. The chief individual decreases are in respect of Enteric Fever, Tuberculosis, Heart Disease, and Diseases of the Digestive System. From no cause is marked increase shown.

At ages 25–44 there is again marked decrease. Decreases occur under Tuberculosis, Malignant Disease, Heart Disease, Lung Disease, and Diseases of the Digestive System. From no cause is marked increase shown.

At ages 45–64 decrease occurs. Decreases occur in respect of Tuberculosis, Nervous Diseases, Heart Disease, Lung Disease, and Diseases of the Digestive System. There is increase from Enteric Fever, Malignant Disease, and Diseases of the Urinary System.

At 65 and upwards there is slight increase in the death-rate. Decreases occur under Diarrhœa and Nervous Diseases. From all other causes there is increase. This is especially marked in respect of Malignant Disease and Heart Diseases. The general trend of this comparison, however, is highly satisfactory.

Comparison of the Mortality from Different Causes of Death at all Ages, and in Infancy, in the Three Main Divisions of the City.

This comparison is made possible by Tables K and J.

From Table K we perceive that the usual order is followed under Phthisis, the death-rate in the Manchester Township being much higher than in South Manchester, and this, in turn, much higher than in North Manchester.

The same order is maintained under Tubercular Meningitis and other Tuberculous Disease, while under Tuberculous Peritonitis and Tabes Mesenterica South Manchester comes first. It is doubtful, however, how far this class represents Tuberculosis.

The same order is maintained in respect of Diseases of the Nervous System, Diseases of the Heart and Blood Vessels, Bronchitis, Pneumonia, and Diseases of the Urinary Organs.

In respect of the Diseases of the Digestive Organs, however, South Manchester stands highest, followed by the Manchester Township and North Manchester.

We do not expect that the same order will prevail in respect of infectious diseases. It does for Measles alone.

From Scarlet Fever North Manchester and South Manchester come first with equal death-rates. From Influenza South Manchester has the highest rate. This is also the case with respect to Whooping Cough. From Diphtheria also South Manchester has the heaviest death-rate, followed by the Manchester Township. From Enteric Fever the Manchester Township comes first, followed by South Manchester. From Diarrhœa the Manchester Township has far the heaviest mortality, which is more than double that in either of the other two divisions.

No material difference exists in respect of Erysipelas, Puerperal Fever, Pyæmia and Septicæmia.

Table J shows that the Manchester Township has the highest infantile mortality, and North Manchester the next. But this order is due to the great reduction in the infantile mortality of South Manchester by the inclusion of Withington and Moss Side. The usual order of mortalities is shown under Measles, Lung Diseases, and Found Dead in Bed. On the other hand, while under Premature Birth, Atrophy, and Suffocation, the Manchester Township has far the heaviest mortality, North Manchester is not far behind, and shows a great excess over South Manchester. From Whooping Cough the heaviest mortality is in South Manchester, as is also the case with Tubercular Disease. From Convulsions North Manchester shows much the heaviest death-rate.

Table N presents the usual features. At every age period the Manchester Township has a higher death-rate than South Manchester, and South Manchester than North Manchester.

In respect of Tuberculous Disease the unvarying facts are found. Tuberculous mortality increases up to the most advanced periods of life in the Manchester Township, while in North and South Manchester it is declining. This one ascribes largely to life in common and similar lodging-houses. This is the hardest nut of all to crack in the prevention of Tuberculosis.

INFECTIOUS DISEASES.

The diseases included in the Infectious Disease (Notification) Acts, 1889 and 1899, are as follows: Smallpox, Scarlet Fever, Diphtheria, Membranous Croup, Typhus Fever, Enteric or Typhoid Fever, Relapsing Fever, Continued Fever, Puerperal Fever, Erysipelas, and Asiatic Cholera. The following cases were notified in 1909 and in the ten previous years, and the year 1909 is compared with the average of the previous ten years:—

	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	Aver'ge for 10 Years	1909
Smallpox	2	3	1	27	422	134	6	5	5	...	61	...
Scarlet Fever ...	1,467	2,507	2,692	2,282	2,012	2,063	1,975	3,075	2,732	2,893	2,370	3,700
Diphtheria..... Memb. Croup	248	337	457	422	620	474	530	551	499	546	469	598
Typhus Fever ...	3	5	39	...	...	...	...	...	1	...	5	20
Enteric Fever ...	381	378	359	378	387	325	345	384	265	393	360	369
Relapsing Fever	...	...	...	...	..	...	...	1	...	...	...	...
Puerperal Fever	35	49	55	47	30	42	82	106	95	101	64	84
Erysipelas	...	177	318	253	291	266	351	383	337	364	†274	371
	2,136	3,456	3,921	3,409	3,762	3,304	3,289	4,505	3,934	4,297	3,603	5,142

† Average 9 years.

The number of deaths for eleven years from the more common diseases is shown in the following table, 1909 being compared with the average of the previous ten years:—

From	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	Aver'ge for 10 Years	1909
Measles	699	254	292	242	345	425	231	475	229	366	356	396
Scarlet Fever ...	46	105	127	146	97	85	78	108	102	92	99	164
Diphtheria..... Memb. Croup	85	101	133	123	136	99	127	119	106	123	115	113
Enteric Fever ...	73	75	75	66	93	66	55	83	37	75	70	88
Smallpox	...	...	...	...	24	9	...	...	...	...	3	...
Influenza	219	239	99	80	62	97	95	90	111	132	122	135
Whooping Cough	227	371	224	242	213	280	195	193	314	220	248	129
	1,349	1,145	950	899	970	1,061	781	1,068	899	1,008	1,013	1,025

The chief feature of the above table is the great rise in the number of cases of Scarlet Fever notified. The deaths also have increased, and in greater proportion than the cases. The course of the recent periodic waves of Scarlet Fever has been somewhat irregular, owing perhaps to the extension of the City, but we may reasonably anticipate that the incidence of last year marks the crest of a wave. Some increase was also observable in Diphtheria and Enteric Fever.

SMALLPOX.

There were no cases of Smallpox notified during the year 1909.

SCARLET FEVER.

The following table shows the course of Scarlet Fever :—

TABLE 1.—SCARLET FEVER, 1909.—ATTACKS IN WEEKS ACCORDING TO DATE OF RASH.

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER		FOURTH QUARTER	
Jan. 9	64	April 10	61	July 10	85	Oct. 9	99
,, 16	42	,, 17	48	,, 17	93	,, 16	75
,, 23	47	,, 24	54	,, 24	74	,, 23	92
,, 30	46	May 1	56	,, 31	56	,, 30	70
Feb. 6	59	,, 8	56	Aug. 7	62	Nov. 6	69
,, 13	51	,, 15	69	,, 14	69	,, 13	59
,, 20	64	,, 22	86	,, 21	66	,, 20	63
,, 27	66	,, 29	76	,, 28	78	,, 27	53
March 6	63	June 5	87	Sept. 4	94	Dec. 4	49
,, 13	68	,, 12	88	,, 11	160	,, 11	45
,, 20	42	,, 19	105	,, 18	113	,, 18	48
,, 27	50	,, 26	86	,, 25	138	,, 25	48
April 3	61	July 3	104	Oct. 2	96	Jan. 1/10	47
Total...	723	Total...	976	Total...	1184	Total...	817

City Total, 3,700.

Attention is called to the great increase in cases of Scarlet Fever which took place early in September. As a result many cases had to be refused admission to hospital, and it was found that multiple cases in families showed marked increase in consequence.

It has been customary to compare the attack-rate from Scarlet Fever in Manchester with that in certain other manufacturing towns. The usual table is here given :—

TABLE 2.—SCARLET FEVER ATTACKS, 1909.—RATES PER 1,000 LIVING, AS COMPARED WITH THE MEAN FOR FIVE YEARS.

	1904	1905	1906	1907	1908	Mean	1909
Twelve Towns *	3·93	4·61	4·54	3·50	3·58	**4·03**	4·16
City of Manchester	3·69	3·35	5·17	4·25	4·39	**4·17**	6·15
Manchester Township	2·89	2·74	5·75	3·99	4·63	**4·00**	4·13
North Manchester	4·49	3·46	6·69	5·06	4·91	**4·92**	6·43
South Manchester	3·55	3·55	3·89	3·86	3·98	**3·77**	6·71

* These are Blackburn, Bolton, Bradford, Burnley, Halifax, Hull, Leeds, Liverpool, Oldham, Preston, Salford, and Sheffield.

It will be seen that the attack-rate in Manchester was very high in 1909 as compared with that in the other towns. It was especially high in North Manchester, in which division it is generally greatest, and it was still higher in South Manchester, the figures for which are exclusive of Withington.

The following table shows the numbers of attacks per 10,000 living during the last 20 years:—

Year.....	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899
	51	48	50	58	43	39	44	33	16	27
Year.....	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
	46	49	42	36	37	34	52	43	44	57

The attack-rate it will be seen was higher than it has been in Manchester since 1893. It is probable that this is partly due to the increasing inability of the Hospital to receive all the cases which might profitably be isolated.

The distribution of the disease is shown in the following table:—

TABLE 3.—1909—SCARLET FEVER ATTACKS IN DISTRICTS, WITH ATTACK RATE, CASE FATALITY PER CENT., AND REMOVALS TO HOSPITAL PER CENT.

DISTRICTS	ATTACKS	ATTACK RATE PER 1,000 LIVING	CASE FATALITY PER CENT.	REMOVALS TO HOSPITAL PER CENT.
Ancoats	180	4·17	8·9	77·2
Central	116	4·80	3·5	68·2
St. George's	215	3·81	3·7	55·8
Cheetham	352	8·18	1·7	64·7
Crumpsall	155	16·35	1·3	26·4
Blackley	61	6·14	6·6	39·3
Harpurhey	92	3·75	5·4	47·9
Moston	112	5·00	2·7	34·8
Newton Heath	242	6·14	7·0	51·2
Bradford	98	3·84	4·1	64·3
Beswick	112	8·83	3·6	78·6
Clayton	81	5·11	6·2	51·8
Ardwick	270	5·89	3·3	57·4
Openshaw	286	9·78	4·5	55·9
Gorton (West)	166	5·08	4·2	63·8
Rusholme and Kirk	274	10·03	3·6	53·3
Chorlton-on-Medlock	252	4·57	3·6	62·3
Hulme	451	7·29	4·9	69·2
Moss Side	185	6·44	2·7	44·9
City of Manchester	**3,700**	**6·15**	**4·1**	**58·1**

The preceeding table shows that the high incidence-rate on North Manchester is due chiefly to the attack-rates in Cheetham, Crumpsall, and Beswick. In Crumpsall a severe milk outbreak occurred, on which Dr. Hutchinson will make a statement. The attack-rate was high also in Openshaw and Rusholme.

The case-fatality rate per cent. has risen in 1909, and is above the average for the past five years.

Year	1902	1903	1904	1905	1906	1907	1908	1909
Case fatality per cent.....	6·2	4·7	4·1	3·5	3·6	3·6	3·6	4·1

The distribution of attacks and deaths according to age is shown in the following figures. The severity of the disease diminishes from infancy up to the age period 20–24. It is thus important to guard very young children from attack.

TABLE 4.

SCARLET FEVER.—NUMBER OF ATTACKS, AND OF DEATHS; ALSO THE CASE FATALITY PER CENT. AT DIFFERENT AGES, FOR THE FOURTEEN YEARS 1895–1908, AND FOR 1909.

AGES	1895-1908			1909		
	ATTACKS	DEATHS	CASE FATALITY PER CENT.	ATTACKS	DEATHS	CASE FATALITY PER CENT.
Under one year ...	214	36	16·8	40	4	10·0
1 to 2 years ...	706	89	12·6	120	18	15·0
2 to 3 ,, ...	1,433	154	10·7	252	22	8·7
3 to 4 ,, ...	2,038	172	8·4	323	24	10·8
4 to 5 ,, ...	2,395	166	6·9	359	29	8·1
5 to 6 ,, ...	2,508	82	3·3	426	18	4·2
6 to 7 ,, ...	2,364	68	2·9	343	8	2·3
7 to 8 ,, ...	2,030	43	2·1	313	5	1·6
8 to 9 ,, ...	1,759	31	1·8	242	3	1·2
9 to 10 ,, ...	1,493	24	1·6	220	4	1·8
10 to 15 ,, ...	4,304	61	1·4	597	9	1·5
15 to 20 ,, ...	1,262	19	1·5	209	2	1·0
20 to 25 ,, ...	533	7	1·3	111	...	...
25 to 35 ,, ...	504	16	3·2	101	7	6·9
35 to 45 ,, ...	120	5	4·2	33	...	...
45 to 55 ,, ...	35	2	5·7	8	...	...
55 to 65 ,, ...				2	...	...
Over 65 ,, ...				1	...	...
All Ages	23,698	974	4·1	3,700	153	4·1

From the following table one obtains a comparison of the death-rates from Scarlet Fever in different localities. Manchester does not show well in 1909. In spite of its very high incidence rate North Manchester has a death-rate considerably less than that of the Manchester Township :—

TABLE 5.—SCARLET FEVER MORTALITY, 1909.—RATE PER 1,000 LIVING, COMPARED WITH MEAN OF FIVE YEARS.

	1904	1905	1906	1907	1908	Mean	1909
England and Wales.....	0·11	0·11	0·10	0·09	0·08	**0·10**	0·09
76 Great Towns	0·12	0·13	0·12	0·12	0·10	**0·12**	0·11
London.....	0·08	0·12	0·11	0·14	0·11	**0·11**	0·08
Manchester City.....	0·15	0·13†	0·19†	0·18†	0·16†	**0·16**	0·27†
Manchester Township	0·17	0·15	0·27	0·20	0·18	**0·20**	0·25
North Manchester	0·16	0·10	0·20	0·22	0·14	**0·16**	0·28
South Manchester	0·14	0·15†	0·14†	0·14†	0·16†	**0·15**	0·28†
142 Smaller Towns	0·13	0·11	0·09	0·08	0·07	**0·10**	0·09
Rural Districts.....	0·09	0·09	0·08	0·06	0·05	**0·07**	0·06

† Exclusive of Moss Side and Withington.

The following table gives the percentage of cases removed to Hospital in each year since 1898:—

TABLE 6.—SCARLET FEVER.

		1891	1895	1896	1897	1898	1899	1900	1901
Manchester Township.	Removal to Hospital, per cent.	79·1	82·0	83·5	89·2	85·8	87·2	88·0	88·5
	Death-rate per 1,000...	0·26	0·37	0·41	0·27	0·11	0·08	0·16	0·24
Entire City.	Removal to Hospital, per cent.	66·0	71·3	73·9	79·7	73·1	74·4	80·9	82·3
	Death-rate per 1,000...	0·22	0·33	0·37	0·23	0·12	0·08	0·19	0·23

		1902	1903	1904	1905	1906	1907	1908	1909
Manchester Township.	Removal to Hospital, per cent.	88·8	91·9	88·6	82·3	75·1	74·5	72·7	66·1
	Death-rate per 1,000...	0·21	0·14	0·17	0·15	0·27	0·20	0·18	0·25
Entire City.	Removal to Hospital, per cent.	81·2	83·4	79·8	72·9	66·3	65·0	68·8	58·1
	Death rate per 1,000...	0·27	0·17	0·15	0·13	0·19	0·18	0·16	0·27

For tables of the return cases the reader is referred to the Hospital reports, and particularly to Dr. Arnold's report on Monsall Hospital. All particulars are furnished of each case alleged to be a return case to the Medical Superintendent of the Hospital concerned, whether the return case is or is not admitted into hospital, so that the tables may be regarded as complete.

ON THE CRUMPSALL OUTBREAK OF MILK-BORNE SCARLET FEVER.

By Dr. J. R. Hutchinson.

On Thursday, September 9th, 1909, 14 cases of Scarlet Fever in the sanitary district of Crumpsall were notified to the Medical Officer of Health. In the five weeks ending September 4th only two cases had occurred in this district, and it was obvious, therefore, that some unusual circumstances were operative. The routine investigation of these cases was made by the District Inspector, who, with commendable promptitude, telephoned to the Public Health Office to say that on investigation he found that all 14 cases had the same milk supply, and that he had visited the farmer supplying the milk and ascertained that two cases of "headache and sore throat" had occurred amongst the farmer's family "at the beginning of the week." The Inspector was instructed by telephone to re-visit the infected houses, and to tell the householders to boil all their milk until further notice. It was found that of the 14 cases 13 were supplied with milk from one farm in the same district, and from this farm only, whereas one case (2,471) had two supplies: one from this farm and one from another dealer. Further, it was positively ascertained that case 2,471, and she only of this household, had drunk milk from the suspected farm; her husband and four children had partaken of the other dealer's milk, and had escaped infection.

On September 8th, the day before this occurrence, two cases of Scarlet Fever had been notified in this district, and one case on September 7th. These three cases had the same milk supply as the 14 notified on September 9th, but no suspicion was aroused until the morning of September 9th.

The evidence so far, therefore, pointed strongly to the milk as the source of infection.

The persons living on the farm numbered six, three males and three females, whilst in addition there were two servant men who lived off the premises, one boy who lived off but who took all his meals at the farm, four boys and one girl who delivered milk from the carts to the customers, and who all lived away. These latter five children were still attending school; they merely helped in the milk business in the evenings.

No new hands had recently come on to the premises, nor had any helpers been discharged. No one was stated to have visited the farm for any purpose whatsoever beyond those enumerated. In all, therefore, 14 persons had to be dealt with.

At the time of the first visit the farmer was away from home. His wife was seen, however, and she stated that on Monday, September 6th, she felt unwell, and on the 8th her throat was painful on swallowing, and she felt generally out of sorts. On this day she stayed in bed, and had fluid food only. She got up much better on the morning of the 9th. On examination on this day her throat was injected round the fauces, soft palate, and uvula; there was a bead of pus on the right tonsil, and the right submaxillary gland was enlarged; the tongue showed nothing distinctive. Distinct peeling was found on the face over the malar bones; it was also found on the arms and forearms; there was no desquamation on the neck or chest.

Her work consisted in general housework and can-washing for the milkers. She had been washing cans right up to date. In this work she was assisted by a boy ("B"), whose duty it was to wash milk vessels and make himself generally useful. Neither the farmer's wife nor the boy ever milked. A careful examination of this boy revealed nothing: there was no history of illness.

The second person in whom a history of illness had been obtained was a young fellow ("J") who was not a regular farm hand, but who lived here, and gave assistance from time to time as a milker, etc. This man, after a holiday, returned to the farm on August 28th. From this date to September 9th he worked about the farm, and on the latter day left home to go to another town ten miles away, where, we were informed, he might be staying "a few days" or "a couple of weeks." The Inspector had been told definitely that this man had been complaining of headache and a sore throat about Wednesday, September 1st; asked again when he was complaining of his throat, we were told "last week, but it was nothing." This would mean any time between August 28th and September 4th. The work which this man had done between these two dates was chiefly to milk and to help the farmer's wife (who began to be ill on Monday, September 6th). The last time he milked was Saturday, September 4th, or Sunday the 5th. An attempt to trace this man failed, and he was not examined until the 17th inst., on which date no indications of a recent attack of Scarlet Fever were present.

Examination was next made of the other women of the house, "A" and "K." Nothing abnormal was found in the case of "K," whilst "A" showed nothing but a dusky inflamed patch the size of a sixpenny piece on the left side of the uvula. These women were milk kitters, each had a daily round, both rounds were separate and distinct, and never by any chance did "A" take "K's" round, or *vice versa*. Now Scarlet Fever cases had occurred on *both these rounds*, and it appeared probable, therefore, that the milk became infected before it left the farm.

On September 12th "A" was examined by two practitioners, who found her suffering from "Follicular Tonsillitis" and a (?) "erythematous rash on the chest." She was subsequently verbally notified to the Medical Officer of Health as a case of Scarlet Fever. The farmer's wife and "A" were instructed to refrain from taking any further part in the conduct of the milk trade, but there is reason to believe that this was not done.

Five children, as before stated, go out with the milk carts and assist in the delivery: they are "F," "G," "N," "H," and "D."

'F" and "G" were dirty, neglected boys; both had septic mouths; one had enlarged tonsils; both had many carious teeth. "G" had otorrhœa of some months' standing. There was no history to lead one to suspect that either had recently had Scarlet Fever.

"N," "H," and "D" were examined with negative results.

This accounts for 10 of the 14 persons possibly concerned. There remains four men to be accounted for: "V," "R," "P," and the farmer himself.

"V" was milking when first seen. He had a curious flush over his hands, forearms, and upper part of chest. His temperature and pulse were normal, his throat showed capillary varices. There was no evidence of Scarlet Fever, but as a measure of precaution he was stopped from milking. Examined again two days later no evidence of disease was found.

"R" and "P" were both examined with negative results. The farmer, too, was examined the next day and nothing was found. As the evidence of Scarlet Fever was not very satisfactory, Dr. Arnold, then Superintendent of Monsall Hospital, was asked to see these cases. We were both of opinion that the farmer's wife had suffered from a slight attack of Scarlet Fever; with regard to the other cases, we concluded that a definite opinion could not be given.

The farmer's wife was then instructed to tell all her customers to boil their milk before using.

A magistrate's order was obtained to enable the Medical Officer of Health and the Veterinary Inspector to inspect the farm, dairy, etc., under the Infectious Diseases Prevention Act, 1890. The same evening the Medical Officer of Health, who was away, was written to. He returned home at once.

On September 10th nine more cases of Scarlet Fever amongst the consumers of this milk were notified, and a letter was received from the Medical Officer of Health of an adjacent district telling of five cases in his area.

With Mr. Brittlebank the farm was re-visited. The stock was examined by Mr. Brittlebank, who found nothing that would in any way account for the outbreak. The farmer himself was instructed to tell all his customers to boil the milk until further notice. Mr. Brittlebank urged him to obtain a steriliser, and to sterilise all his milk before it left the premises. On this occasion we learned that in addition to the milk produced at this farm a certain quantity is bought daily from two other farmers outside the City. Both were visited, but no evidence of Scarlet Fever was forthcoming and no illness amongst the stock was discovered.

A telephonic communication from a second sanitary authority outside the City was received on September 11th to the effect that 11 cases of Scarlet Fever had been notified to the Medical Officer of Health, and that all these cases had a common milk supply in the Manchester area. On this day, too, six more cases were notified to the Public Health Office.

The total number of cases up to and including Saturday, September 11th, was 49.

The Medical Officer of Health visited 17 patients on September 11th, and was satisfied that the disease was true Scarlet Fever. He visited the infected farm, emphasised the necessity for observing the precautions which the farmer had already been directed to take, and asked him for a list of his customers, which, it was understood, would be at once forthcoming.

On Monday, September 13th, no list of customers had been sent, nor had a steriliser been obtained. On this date 41 fresh cases were notified. Enquiries at 21 of these revealed the fact that at only two of these houses had the farmer notified the families to boil their milk. Of 14 other cases visited, instructions to boil the milk had been given at seven only.

On September 11th instructions were given for a meeting to be called to receive the report of the Medical Officer of Health on this subject, and to seek powers to summon the farmer before the Local Authority to show cause why the milk supply should not be stopped.

The meeting was called for Wednesday the 15th September.

It was not until the 17th, therefore, that the farmer appeared before the Local Authority, when an order was made, but its service suspended provided that the instructions of the Medical Officer of Health were immediately carried out.

On the 14th September 10 new cases were notified, and from this time onwards the number rapidly diminished. (See table.)

The Medical Officer of Health on September 15th visited and examined the five children going out with milk. The condition found by him in four of them coincided with that found on the first examination on September 9th. In the fifth case ("N"), however, he found a history of sore throat on September 11th, sickness on the 12th, with congestion of the tonsils and enlargement of the right submaxillary gland. This boy did not consume milk from the infected farm. Assuming, therefore, that he had mild Scarlet Fever, he was not infected by milk, but otherwise. He was suspended from work until further notice.

Not until the farmer was summoned before the Local Authority did he take full precautions as directed on September 9th; by this time the outbreak was practically over and the usual measures of disinfection, etc., had been carried out.

On page 36 are tables representing the weekly incidence of the disease within a radius of one mile of the farm for a period of five weeks. They well illustrate the rapid onset and equally rapid decline characteristic of milk-borne disease.

The woman "A" was not definitely excluded from taking part in the milk business until September 17th, when she was sent away from home. She did not resume work until October 8th, and then after a medical examination.

After the order on the farmer was made on September 17th he distributed notices, drawn up by the Medical Officer of Health, to all his customers, warning them that, for the present, all milk obtained from him must be boiled before use.

On September 21st a second examination of the milk distributors was made.

"F" was now found to have distinct injection of the fauces and tonsils, with submaxillary adenitis on both sides.

"G" showed much the same condition, and in addition the lingual papillæ were enlarged.

"H" had a raw tongue with enlarged papillæ, the throat was engorged, and there was symmetrical submaxillary adenitis. There was no desquamation.

"D" had a temperature of 99·6°, enlarged tonsils, congested throat, and "strawberry" tongue, with enlargement of the left submaxillary gland.

All these children had previously been twice examined (on September 9th and 15th) with negative results. There was no history of an eruption or of illness in any one of them, but the condition found on the third examination was totally different from that on the two previous occasions.

"F," "G," "H," and "D" were suspended from work for a period of two weeks, and were each provided with antiseptic throat lozenges.

On October 8th "H" and "D" were again examined. No glandular enlargement was then found. The throats were quite pale, and there were no indications of recent infection.

The farmer's wife and the persons "A," "B," "R," and "V" were also again examined on this date. As on the previous occasion, "B" and "R" showed nothing abnormal; the farmer's wife, "A," and "V" were now free from any signs of disease.

That the disease was milk-borne is evidenced by the following facts:—

(1) That of 32 cases occurring in the week ending September 11th in the sanitary district in which the farm was situated, 31 had a common milk supply; and that in addition of 17 cases occurring at the same time in the districts of two adjacent authorities, all had this same milk supply.

The corresponding figures for the week ending September 18th are: for Manchester, 44 cases out of 44; and for the other two districts, 21 out of 21 cases. For the week ending September 28th the figures are: for Manchester, 10 out of 14; and for the other districts, 1 out of 1.

(2) Cases 2,545, 2,537–8, 2,542–3–4, 2,577, and one unnotified, were the only members of their respective families who drank unboiled milk. They were all infected, whereas no other member of the families became ill. Case 2,471 was the only person in her family who consumed milk from the infected farm. The five other persons in the family drank milk from another source.

In this connection, cases 2,421 and 2,579 are particularly interesting. These were children who came into the district on a visit on September 1st Case 2,421 was known to have drunk raw milk; she began to be ill on September 5th; she was promptly and well isolated. Her brother (case 2,579) began to be ill on September 11th, but as he "always had his milk boiled" the source of infection was not ascertained until it transpired that his nurse, in order to expedite the cooling of the milk, added raw milk to it.

(3) As in all milk epidemics, the onset was sudden, the decline equally so.

(4) The proportion of adults affected was large. Of the first 100 cases notified, there were under 15 years of age 48; 15 years and over, 52. Of the cases notified during the years 1894–1907 in the City of Manchester, there were under 15 years of age 26,614; 15 years and over, 2,799. No doubt if all the slighter attacks were notified the contrast would be still more striking.

The youngest patient was $1\frac{6}{12}$ years old; the oldest, 61 years.

(5) As is usual in outbreaks due to milk, the cases were generally mild. Only one death occurred in the 98 notified Manchester cases. This gives a rate of 1·001 per cent., whereas the death-rate in the 29,413 cases during the years 1894–1907 was 5·1 per cent.

That the outbreak was milk-borne, therefore, is beyond question.

Evidence that the Outbreak was one of true Scarlet Fever.

On September 11th, 17 cases were visited by the Medical Officer of Health. He was satisfied that the disease was Scarlet Fever.

By the courtesy of the Medical Officer of Health of a neighbouring sanitary authority, four cases occurring in his district were visited. They were undoubted Scarlet Fever. He, too, was of this opinion.

Twelve of the cases were treated in the Monsall Hospital. Dr. Arnold, the then Superintendent, was satisfied that they were cases of this disease.

No doubts existed in the minds of any of the practitioners who notified the cases. They were notified without qualification.

The after course, sequelæ, and complications, were those of Scarlet Fever.

The after history of 76 of the Manchester cases is known—thanks to the courtesy of five of the practitioners concerned. From these it appears that of these 76—12, or 17 per cent., developed Post Scarlatinal Nephritis; 3 or 3·9 per cent., developed Otorrhœa; 3, or 3·9 per cent., developed Rheumatism, complicated by fatal Endocarditis in one case; 2, or 2·6 per cent., developed simple Endocarditis; whilst 1, or 1·3 per cent., developed Suppurative Cervical Glands.

The cardinal symptoms of Scarlet Fever were present in the vast majority of the cases.

Of the 98 notified cases, 89, or 90 per cent., had sore throats; 81, or 82·6 per cent., had a scarlet rash; 48, or 49 per cent., had headache; and 37, or 37·7 per cent., vomited.

In 74, or 75·5 per cent. of cases were the rash and sore throat associated.

There can be no doubt, therefore, but that the disease was Scarlet Fever.

How did the milk become infected?

As was shown by Mr. Brittlebank, the herd from which the milk was obtained was perfectly well; nor was any indisposition amongst either human beings or cattle discoverable at the two other farms from which milk is bought. All these milks are distributed indiscriminately. There was no question, therefore, of any particular distribution of any particular milk. There remains only the personal element on the Manchester farm.

The first case to occur was case 2,581, who began to be ill on September 3rd. She was a woman of 52 years of age, and was a cook.

At this time there were no known cases of Scarlet Fever within three-quarters of a mile of the farm, and none within half-a-mile of where case 2,581 lived.

What suspicious incidents, if any, at the farm preceded the onset of this case? These, in chronological order, are as follows:—

IMPORTANT INCIDENTS AT THE FARM BEFORE AND DURING THE OUTBREAK.

	Date	No. of cases beginning on certain days	
"J" complained some time between these two dates—Aug. 28—Sept. 4			
"J," a worker on farm, returned from holiday. No known case of Scarlet Fever within half-mile of farm.	Aug. 28		
"J" assists in the work of the farm, milking from time to time, until Sept. 4th or 5th. He also helps farmer's wife generally	„ 29		
	„ 30		
	„ 31		
Inspector informed that "J" complained of his throat on	Sept. 1		
	„ 2		
	„ 3	1	107 cases, beginning between Sept. 3rd and 14th inclusive
	„ 4	—	
	„ 5	3	
Farmer's wife (can-washer and housewife) unwell	„ 6	18	
Ditto ditto	„ 7	21	
Complains of throat; in bed all day.....	„ 8	15	
Examined, suspended, evidence of Scarlet Fever. "J" leaves here. "V," a milker, suspended. "N," "B," "F," "G," "H," and "D" examined. "A" suspended.....	„ 9	21	
	„ 10	12	
	„ 11	9	
"A" reported to Medical Officer of Health verbally by a practitioner as Scarlet Fever	„ 12	3	
	„ 13	2	
	„ 14	2	
"B," "F," "G," "H," "D," and "N" examined by Medical Officer of Health. "N" suspended	„ 15		
	„ 16		
Precautions taken by farmer: "A" sent away, "J" examined. No evidence of recent Scarlet Fever	„ 17		
	„ 18		
	„ 19		
	„ 20		
"B," "F," "G," "N," and "D" examined by Medical Officer of Health. "F," "G," "N," and "D" suspended	„ 21		
	„ 22		
	„ 23		
	„ 24		
	„ 25		
	„ 26		
	„ 27		
	„ 28		
	„ 29		
	„ 30		

The most important appears to be the return of the man " J " on August 28th. Inspector Glover was informed on September 9th that " J " had a headache and sore throat on September 1st; later the same day we were told that the time was "last week"—*i.e.*, to say any time between August 29th and September 4th. That he milked during this week is certain, and that he had symptoms not incompatible with Scarlet Fever is equally certain. Part of his work was to assist the farmer's wife, and she had undoubted signs of the disease when examined on September 6th and 9th. Again " J " disappeared on the morning of September 9th, and in spite of repeated requests that he should be sent for he did not reappear until September 17th, on which day certainly he was free from any evidence of recent Scarlet Fever. The symptoms of which " J " complained were exactly the symptoms experienced by several adults in infected houses in which notified cases had occurred. At seven houses visited by the Medical Officer of Health on September 11th three such cases were seen, viz., those in attendance on cases 2,421, 2,449, and 2,447. In the first two, no signs of disease whatever were found, although only three days had elapsed in one case and five in the other. In the third case some little adenitis was found; this case was six days old, whereas " J " was not examined until at least 15 days after he was complaining. It is morally certain that these three adults had Scarlet Fever, whatever " J " had. Fourteen unnotified cases in which the only symptom present was sore throat were found. One case described as ulcerated is omitted from these, as are cases in which there was vomiting. It is unfortunately not known whether there were any physical signs in these cases subsequently. But cases continued to occur after " J " had left the farm. So they did, but in diminished numbers. Moreover, the farmer's wife was certainly suffering on the 9th, and the woman "A" was verbally notified as a case of Scarlet Fever on the 12th. Both these women pursued their daily avocations in spite of directions to the contrary. On September 14th the Medical Officer of Health suspended a milk boy ("N"), and suspended four other children who were similarly employed on September 21st. The farm, therefore, was practically never without a suspicious case on it. The signs

which the four children presented on September 21st were sufficient to justify their suspension, but when two were examined 17 days later not a trace of disease could be found. Again, " J " is said to have milked for the last time on September 4th or 5th; allowing for an incubation period of two to five days, and assuming that he infected the milk on the former date, then the influence of this is liable to make itself felt up to September 9th. It is probable in cases definitely infected by ingestion that the incubation period is less than in cases infected in other ways ; assume, then, that the period is three days, then the cases would go on to September 7th ; but although " J " milked for the last time on the 4th or 5th September, he washed cans and generally assisted the farmer's wife, who also washed cans, up to September 9th. Therefore, if he ceased to infect the milk as it came from the cow, either he or those he helped might have infected the cans.

There is no evidence to show that "A" assisted in spreading infection amongst the consumers. It is not unlikely that she infected to a slight degree the children suspended by the Medical Officer of Health on September 21st. Two of them accompanied her on her round, but which two, or whether always the same two, is not known.

On the whole, the bulk of the evidence obtained goes to show that " J " probably suffered from a very mild attack of Scarlet Fever, and that he unwittingly infected the milk either when acting as a milker or a can-washer. That the disease was contracted in a very mild form by two others in the house who assisted in the conduct of the milk trade, and this probably accounts for the occurrence of further cases after the removal of the probable primary source of infection.

In the investigation of this outbreak, most valuable work was done by Sanitary Inspectors Glover and Dempsey.

A complete history of all the Manchester cases has been collected, but is not reproduced here. From this it appears that the cases of Scarlet Fever amongst the consumers of milk from this farm, though notified at varying

periods, nearly all commenced to be ill at such a date as to point strongly to "J" having been the source of the milk infection.

The figures are as follows:—

Date	Notified cases consuming the Milk in Manchester	Date of onset of Manchester cases
September 3..	..	1
„ 4..	..	..
„ 5..	..	3
„ 6..	..	10
„ 7..	1	21
„ 8..	2	13
„ 9..	14	18
„ 10..	9	11
„ 11..	6	9
„ 12..	..	1
„ 13..	28	1
„ 14..	7	1
„ 15..	2	..
„ 16..	4	..
„ 17..	..	..
„ 18..	4	..
„ 19..	..	..
„ 20..	6	1
„ 21..	1	1
„ 22..	4	1
After this date	10	8

The full details of the notifications of cases associated with this milk supply, both in Manchester and in the adjoining districts, are given in the following table :—

TABLE SHOWING DAILY NUMBER OF NOTIFICATIONS.

	To Manchester	To other Authorities
September 7..	1	..
,, 8..	2	6
,, 9..	14	5
,, 10..	9	4
,, 11..	6	2
,, 12..	..	2
,, 13..	29	12
,, 14..	7	3
,, 15..	2	1
,, 16..	4	1
,, 17..	..	2
,, 18..	3	..
,, 19..	..	..
,, 20..	6	1
,, 21..	1	..
,, 22..	4	..
,, 23–27	..	1
,, 28..	1	..
,, 29..	..	..
,, 30..	1	..
October 1–3	..	..
,, 4..	1	..
,, 5..	1	..
,, 6–11	..	1
,, 12..	1	..
,, 13–14	..	..
,, 15..	1	..
,, 16–25	..	..
,, 26..	1	..
,, 27..	..	..
Oct. 29–Nov. 8	..	..
November 9..	1	..
,, 10–22	..	..
,, 23..	1	..
	98 +	41 = 139

The infection of the milk may be assumed to have commenced about September 4th, and to have terminated on September 11th. This is apparent from the history of the onsets.

The other incidents are of subordinate importance.

If quarter-mile circles are drawn round the farm in question, owing to the completeness of the information supplied by other authorities we are in a position to show the distribution of the milk-borne Scarlet Fever cases notified in successive weeks.

INCIDENCE OF NOTIFIED MILK-BORNE CASES IN WEEK ENDING

	Sept. 4th	Sept. 11th	Sept. 18th	Sept. 25th	Oct. 2nd
Within ¼ mile	..	18	18	5	5
Between ¼ and ½ mile	..	15	23	9	..
,, ½ and ¾ ,, ...	..	4	8	5	2
,, ¾ and 1 ,, ...	..	9	1	4	..

INCIDENCE OF ALL CASES NOTIFIED WITHIN THE WEEK ENDING

	Sept. 4th	Sept. 11th	Sept. 18th	Sept. 25th	Oct. 2nd
Within ¼ mile	..	18	18	5	5
Between ¼ and ½ mile	..	33	41	14	5
,, ½ and ¾ ,, ...	2	37	49	19	7
,, ¾ and 1 ,, ...	5	46	50	23	7

To sum up, there is no doubt at all either that the Crumpsall outbreak was due to a particular milk supply, or that the milk itself was infected.

There is very little doubt that the illness of " J " is responsible for practically the entire milk outbreak, the few subsequent cases having been due, in the main, to direct infection. This appears clearly from study of the dates of onset It might be assumed, therefore, that the efforts of the Public Health Office and the action of the Sanitary Authority effected nothing.

Having regard, however, to the number of slight cases which subsequently occurred amongst persons employed about the farm, it is probable that the visits paid and examinations made, both by private practitioners and by the staff, and the action taken upon them, prevented subsequent extension of the outbreak through the milk supply.

DIPHTHERIA AND MEMBRANOUS CROUP.

The following table shows the number of cases notified each year for the last 10 years :—

1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
337	457	422	620	474	530	551	499	546	598

These figures show that Diphtheria was more prevalent in 1909 than in the two previous years. In former years the notified cases to some extent partook of the movements of Scarlet Fever, but now that bacteriological diagnosis is the rule, this is the case to a much smaller extent.

The distribution of the disease throughout the year is shown in the following table :—

Table I.

Diphtheria, Memb. Croup, 1909.—Attacks in Weeks, according to date of onset.

First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
Jan. 9	15	April 10	17	July 10	9	Oct. 9	10
,, 16	18	,, 17	10	,, 17	10	,, 16	9
,, 23	28	,, 24	13	,, 24	6	,, 23	14
,, 30	18	May 1	13	,, 31	10	,, 30	12
Feb. 6	19	,, 8	14	Aug. 7	6	Nov. 6	6
,, 13	14	,, 15	7	,, 14	6	,, 13	11
,, 20	18	,, 22	16	,, 21	8	,, 20	8
,, 27	12	,, 29	17	,, 28	12	,, 27	10
March 6	16	June 5	13	Sept. 4	14	Dec. 4	10
,, 13	13	,, 12	8	,, 11	7	,, 11	4
,, 20	13	,, 19	11	,, 18	5	,, 18	12
,, 27	14	,, 26	10	,, 25	10	,, 25	7
April 3	12	July 3	10	Oct. 2	7	Jan. 1, 1910	6
Total...	210	Total...	159	Total...	110	Total...	119

City total, 598.

It will be seen that, very different from Scarlet Fever, Diphtheria visited the City most severely in the first quarter of the year.

The attack rate, however, is considerably less than that in the other 12 industrial centres which we take for comparison.

Table II.

Shows the Attack Rate per 1000 living for the year 1909, compared with the mean of five years—Diphtheria and Membranous Croup.

	1904	1905	1906	1907	1908	Mean	1909
*Twelve Notification Towns ...	1·35	1·25	1·71	1·19	1·25	**1·35**	1·44
City of Manchester	0·85	0·90	0·93	0·78	0·83	**0·86**	†0·98
Manchester Township	0·59	0·90	0·79	0·69	0·88	**0·77**	0·89
North Manchester	0·95	0·89	1·20	1·12	0·83	**1·00**	0·98
South Manchester	0·91	0·90	0·81	0·60	0·81	**0·81**	†1·03

* These are in Lancashire and Yorkshire. † Exclusive of Withington.

The attack rate is highest in South Manchester.

Diphtheria agrees with Scarlet Fever in being very fatal in infancy, and the severity of the disease diminishes up to the 25th year. The attack rate is highest in the 5th year of life, and the mortality in the 2nd year. These points are exhibited in Table III.

Table III.

Diphtheria, Memb. Croup, 1909.—Number of Attacks, of Deaths, and Case Fatality at Different Ages, for the Fourteen Years 1894-1908, and for 1909.

	1894-1908			1909		
Ages	Attacks	Deaths	Case Fatality*	Attacks	Deaths	Case Fatality*
Under one year ...	124	77	62·1	11	8	72·8
1 to 2 years ...	406	204	50·2	56	19	33·9
2 to 3 „ ...	415	155	37·3	71	18	25·3
3 to 4 „ ...	571	172	30·1	76	20	26·3
4 to 5 „ ...	575	141	24·5	92	20	21·7
5 to 6 „ ...	511	122	23·9	57	10	17·5
6 to 7 „ ...	362	79	21·8	56	4	7·1
7 to 8 „ ...	276	49	17·7	33	3	9·1
8 to 9 „ ...	232	44	19·0	17	...	...
9 to 10 „ ...	179	28	15·6	22	2	9·1
10 to 15 „ ...	452	29	6·4	42	3	7·1
15 to 20 „ ...	157	10	6·4	12	...	...
20 to 25 „ ...	128	4	3·1	16	...	...
25 to 35 „ ...	205	9	4·4	22	...	...
35 to 45 „ ...	61	2	3·3	12	...	...
45 to 55 „ ...	30	6	20·0	3	...	...
55 to 65 „ ...						
Over 65 „ ...						
All ages	4684	1131	24·1	598	107	17·9

* The percentages in this column are the actual proportions of fatal cases to the attacks at those ages.

The case fatality rate for all ages in each of the years 1900 to 1909 is given below :—

1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
—	—	—	—	—	—	—	—	—	—
29·0	28·8	29·4	21·9	20·7	22·4	21·1	20·4	21·8	17·9

It will be seen that the attacks in 1909 were much less fatal than in some previous years.

From the following figures we perceive that the high incidence of Diphtheria on North Manchester is due to its prevalence in Cheetham, Crumpsall, and Blackley, the incidence on Moston, Harpurhey, and Newton being lower than on other districts of Manchester. The incidence on individual districts of South Manchester is high, and if we exclude Withington, the attack rate for this division of the City becomes 1·03 per 1,000, as against 0·98 per 1,000 for North Manchester.

TABLE IV.

DIPHTHERIA AND MEMBRANOUS CROUP, 1909.—ATTACKS IN DISTRICTS, WITH ATTACK RATE, CASE FATALITY PER CENT., AND REMOVALS TO HOSPITAL PER CENT.

DISTRICTS		ATTACKS	ATTACK RATE PER 1000 LIVING	† CASE FATALITY PER CENT.	REMOVALS TO HOSPITAL PER CENT.
Manchester Township	Ancoats	36	0·84	22·2	69·4
	Central	20	0·83	20·0	75·0
	St. George's	54	0·96	22·2	55·5
North Manchester	Cheetham	62	1·44	6·4	53·2
	Crumpsall	35	3·70	11·4	28·5
	Blackley	14	1·41	14·3	42·9
	Harpurhey	13	0·53	15·4	46·2
	Moston	13	0·58	15·4	23·1
	Newton Heath	20	0·51	40·0	75·0
	Bradford	19	0·74	21·1	84·2
	Beswick	11	0·87	18·2	72·8
	Clayton	12	0 76	8·3	33·3
South Manchester	Ardwick	52	1·13	23·1	53·8
	Openshaw	31	1·06	16·1	61·3
	Gorton (West)	27	0·83	22·2	62·9
	Rusholme and Kirk.	43	1·57	4·6	27·9
	Chorlton-on-Medlock	51	0·92	25·5	50·9
	Hulme	62	1·00	22·6	67·7
	Moss Side	23	0·80	8·7	30·5
City of Manchester		**598**	**0·98**	**17·9**	**53·8**

† Corrected : the fatal cases are those actually occurring amongst the cases notified.

The following table shows that though the incidence has gone up in 1909, the death-rate is somewhat lower than in 1908. As compared with other towns, Manchester has a higher death-rate. The death-rate is decidedly highest in South Manchester, and is decidedly lowest in North Manchester.

TABLE V.

DIPHTHERIA, MEMB. CROUP MORTALITY, 1909.—RATE PER 1000 LIVING COMPARED WITH MEAN OF FIVE YEARS.

	1904	1905	1906	1907	1908	Mean	1909
England and Wales	0·17	0·16	0·17	0·16	0·15	**0·16**	0·14
76 Great Towns	0·19	0·16	0·19	0·17	0·16	**0·17**	0·15
London	0·16	0·12	0·15	0·16	0·15	**0·15**	0·13
Manchester City	0·18	*0·22	*0·20	*0·18	*0·20	***0·20**	*0·19
Manchester Township	0·13	0·25	0·21	0·21	0·23	**0 21**	0·19
North Manchester	0·22	0·19	0·22	0·19	0·16	**0·20**	0·15
South Manchester	0 17	*0·22	*0·18	*0·16	*0·21	***0·19**	*0·21
142 Smaller Towns	0·16	0·15	0·17	0·15	0·16	**0·16**	0·16
Rural Districts	0·14	0·15	0 16	0·15	0·15	**0·15**	0·14

* Exclusive of Moss Side and Withington.

ENTERIC FEVER.

BY DR. J. R. HUTCHINSON.

In the Annual Reports of the Medical Officer of Health for 1907 and 1908 a complete account of the disease, together with the manner in which it is propagated, is to be found.

This report goes less into detail than either of its two immediate predecessors. The facts deducible from the behaviour of the disease during 1909 serve merely to emphasise the points brought out in previous reports, viz. :—

(1) That no inconsiderable number of cases of Enteric Fever is contracted in Manchester from the consumption of shell-fish ;

(2) That, given a good investigator, the infecting source can in a very large number of cases be found ;

(3) That overlooked and unattended cases, particularly amongst children, are responsible for many "subsequent" cases.

A general view of the course of the disease in recent years is given in the following table :—

Table I.

Incidence of and Death-rate from Enteric Fever in Manchester.

Number of notified cases, deaths, and death-rates per 1,000 *living from Enteric Fever in each of twelve successive years.*

Year	1898	1899	1900	1901	1902	1903
No. of cases notified	642	381	378	359	378	387
No. of deaths	120	73	75	75	66	93
Death-rate—Manchester..	0·22	0·13	0·14	0·14	0·12	0·17
Death-rate—England and Wales	0·18	0·20	0·17	0·16	0·13	0·10

Year	1904	1905	1906	1907	1908	1909
No. of cases notified	325	345	384	265	393	369
No. of deaths	66	55	83	37	75	71
Death-rate—Manchester..	0·12	0·09	0·14	0·06	0·11	0·13
Death-rate—England and Wales	0·09	0·09	0·09	0·07	0·07	0·06

The number of cases notified was slightly smaller in 1909 than in 1908, and the death-rate was slightly greater.

The following table shows the incidence of the disease according to locality :—

Table II.

Enteric Fever, 1909.—Number of Attacks in Districts, with Attack Rate, Case Fatality per cent., and Removals to Hospital per cent.

Districts	Attacks	Attack Rate per 1,000 living	† Case Fatality per cent.	Removals to Hospital per cent.	Mean Attack Rate 1899-1908
Ancoats	50	1·16	24·0	84·0	0·77
Central	21	0·87	14·3	81·0	0·55
St. George's	40	0·71	12·5	77·8	0·74
Cheetham	25	0·58	12·0	88·0	0·42
Crumpsall	4	0·42	25·0	75·0	0·66
Blackley	9	0·91	22·2	55·5	0·49
Harpurhey	9	0·37	22·2	66·7	0·83
Moston	4	0·18	...	50·0	0·38
Newton Heath	22	0·56	4·5	81·8	0·70
Bradford	13	0·51	46·2	38·5	0·88
Beswick	2	0·16	...	50·0	0·74
Clayton	7	0·44	14·3	85·7	0·90
Ardwick	20	0·44	35·0	80·0	0·58
Openshaw	22	0·75	22·7	77·2	0·79
Gorton (West)	19	0·58	15·8	63·1	0·98
Rusholme and Kirkman.	4	0·15	25·0	25·0	0·34
Chorlton-upon-Medlock	35	0·63	17·1	80·0	0·41
Hulme	54	0·87	18·5	75·9	0·61
Moss Side	9	0·31	33·3	55·5	...
City of Manchester	**369**	**0·61**	**19·2**	**75·3**	**0·63**

† Corrected; the fatal cases are those actually occurring amongst the cases notified.

The highest attack rates are found in order of magnitude in Ancoats, Blackley, Central, Hulme, Openshaw, St. George's, and Chorlton-on-Medlock, closely followed by Cheetham, West Gorton, and Newton Heath.

That is to say, the highest attack rate is in the Manchester Township, and the next highest in South Manchester.

Blackley occupies a somewhat false position, as the number of cases occurring there was much smaller than in any of the other nine districts mentioned.

Whereas in 1908 Ancoats, Crumpsall, Openshaw, and West Gorton had an attack rate of something more than 1 per 1,000 living, Ancoats alone occupies this position in 1909.

Incidence of the Disease According to Age.

The appended Table III. gives in concise form the number of attacks, their age, incidence, and the case fatality per cent. at different ages.

Table III.

Enteric Fever.—Number of Attacks, of Deaths, and Case Fatality per cent. at Different Ages, for the Ten Years 1898–1908, and for 1909.

Ages	1898-1908			1909		
	Attacks	Deaths	Case Fatality per cent.	Attacks	Deaths	Case Fatality per cent.
Under one year ...	6	1	16·7	2	....	...
1 to 2 years ...	23	...	...	1	...	...
2 to 3 ,, ...	41	4	9·8	6	3	50·0
3 to 4 ,, ...	55	5	9·1	6	...	...
4 to 5 ,, ...	64	5	7·8	5	1	20·0
5 to 6 ,, ...	72	5	6·9	13	3	23·1
6 to 7 ,, ...	82	6	7·3	14	3	21·4
7 to 8 ,, ...	78	7	9·0	5	...	...
8 to 9 ,, ...	83	10	12·0	8	...	...
9 to 10 ,, ...	64	7	10·9	14	1	7·1
10 to 15 ,, ...	454	48	10·6	54	4	7·4
15 to 20 ,, ..	493	80	16·2	45	7	15·6
20 to 25 ,, ...	564	116	20·5	50	7	14·0
25 to 35 ,, ..	899	192	21·4	72	18	25·0
35 to 45 ,, ...	367	110	30·0	42	11	26·2
45 to 55 ,, ...	183	52	28·4	23	9	39·1
55 to 65 ,, ...	57	24	42·1	9	4	44·4
Over 65 ,, ...	10	5	50·0	...	...	...
All ages	**3595**	**677**	**18·8**	**369**	**71**	**19·2**

This table differs little from the corresponding one for 1908. One satisfactory feature about it, however, is the somewhat increased number of cases notified in children. Overlooked cases in children are, from their habits, more likely to give rise to subsequent cases than similar cases in adults.

The one case notified as occurring in a child under one year of age is very interesting. This child was aged 4 months, and was breast-fed. She was admitted with her mother and sister, both of whom had definite typhoid symptoms, into one of the Union Hospitals.

The baby had been breast-fed until the mother was too ill to feed her any longer. On admission to hospital the child, which was well nourished and well developed, presented no symptoms. Eleven days after, however, she had a morning temperature of 99·6, going up to 100 in the evening; the corresponding temperatures on the next day were 99·6 and 101·6, and on the following day 98·8 and 97·8. From this time to just before death, which occurred on the seventh day of illness, the temperature remained subnormal; on the evening of the day on which death took place it rose to 99·2. The onset of the disease was marked by restlessness and pallor, quickly followed by sinking in of the eyes and fontanelles, and flexion of the thighs on the abdomen. The pulse varied between 100 and 120 throughout the illness. There was slight abdominal tumidity; the spleen could not be felt; there was no diarrhœa, no bronchitis, and no rash. The appearance was simply that of profound depression. From the history and general appearance of the child a diagnosis of Typhoid Fever was made, and this was confirmed post-mortem.

The lower two feet of the ileum showed Pyer's patches in the first or hyperplastic stage which precedes necrosis; the corresponding mesenteric glands were acutely enlarged; the spleen was enlarged, but not markedly so; the heart, lungs, and brain were normal.

For the details of this case I am indebted to Dr. C. M. Craig.

This child showed few or no symptoms which are not met with in any severe acute febrile illness in infants, and a positive diagnosis would have been impossible had she not been seen in conjunction with her mother and sister. No blood reaction was tried in this case.

A somewhat similar but less severe case, and one in which recovery took place, marked the beginning of an outbreak of Enteric Fever in West Gorton in the autumn of 1908. The illness was attributed to "Summer Diarrhœa." Be that as it may, however, three positive cases of Enteric Fever occurred in the same house within a few weeks.

That infants do contract Enteric Fever is certain. That the disease is much more likely to be overlooked than in adults is equally certain. Hence the danger of infection from these cases is proportionately greater.

So far as is at present known, only by the examination of the blood (Widal's Reaction) can the diagnosis in these cases be satisfactorily settled.

Table IV.

Enteric Fever Attacks in weeks Reported in 1909, According to date of Onset.

First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
Jan. 9	15	Apl. 10	12	July 10	4	Oct. 9	10
,, 16	22	,, 17	4	,, 17	1	,, 16	9
,, 23	13	,, 24	6	,, 24	5	,, 23	8
,, 30	19	May 1	2	,, 31	3	,, 30	5
Feb. 6	17	,, 8	3	Aug. 7	5	Nov. 6	6
,, 13	7	,, 15	6	,, 14	3	,, 13	4
,, 20	20	,, 22	5	,, 21	5	,, 20	2
,, 27	12	,, 29	6	,, 28	10	,, 27	3
Mch. 6	8	June 5	2	Sept. 4	9	Dec. 4	4
,, 13	5	,, 12	6	,, 11	10	,, 11	1
,, 20	10	,, 19	6	,, 18	5	,, 18	2
,, 27	5	,, 26	4	,, 25	7	,, 25	3
Apl. 3	9	July 3	6	Oct. 2	11	Jan. 1/10	4
Total...	162	Total...	68	Total...	78	Total...	61

City Total 369

Table IV. shows the number of cases occurring in weeks, according to date of onset.

The first two months of 1909 present a marked contrast to the same period for 1908. The last two months of 1908 show a large increase in the number of notified cases, and this increase was sustained until well into the first quarter of 1909.

As in 1908 there appears to have been a critical rise in the thirty-fourth week.

The importance of this rise is commented upon by the Medical Officer of Health in the section relating to Diarrhœa. (See page 62.)

Tables V. and VI. give respectively the attack rate and the death rate as compared with the previous five years.

Table V.

Enteric Fever Attacks, 1909.—Rates per 1,000 living, Compared with Mean of Five Years.

	1904	1905	1906	1907	1908	Mean	1909
Twelve Notification Towns ...	0·71	0·61	0·34	0·48	0·56	**0·54**	0·42
City of Manchester	0·58	0·59	0·65	0·41	0 60	**0·57**	*0·61
Manchester Township	0·82	0·66	0·73	0·50	0·79	**0·70**	0·90
North Manchester.....	0·56	0 58	0·77	0·32	0·44	**0·53**	0·47
South Manchester.....	0·47	0·55	0·53	0·43	0·61	**0·52**	*0·58

* Excluding Withington.

Table VI.

Enteric Fever Mortality, 1909. Rate per 1,000 living, Compared with Mean of Five Years.

	1904	1905	1906	1907	1908	Mean	1909
England and Wales	0·09	0·09	0·09	0·07	0·07	**0·08**	0·06
London	0·06	0 05	0·06	0·04	0·05	**0·05**	0·03
Dublin	0·19	0·16	0·16	0·11	0·14	**0·15**	0·17
City of Manchester	0·12	0·09†	0·14†	†0·06	†0·12	**0·11**	†0·15
Manchester Township	0·15	0·12	0·16	0·09	0·15	**0·13**	0·22
North Manchester.....	0·11	0·07	0·11	0·05	0·07	**0·08**	0·11
South Manchester.....	0·11	0·09†	0·16†	†0·05	†0·13	**0·11**	†0·14

† Exclusive of Moss Side and Withington.

Table VII.

Number of Cases per Quarter, with their Relationship to Previous Cases, and their Association with the Consumption of Shell-fish.

	Traced to previous cases	In association with shell-fish	Not traced
First Quarter	40	25	71
Second Quarter	18	5	47
Third Quarter	9	6	56
Fourth Quarter	8	14	70
.. .. 1909	75	50	244

Table VIII

	No. of cases associated withshell-fish consumption	No. of cases not so associated	
Week ending Jan. 9 ..	—	10	
,, ,, ,, 16 ..	7	17	
,, ,, ,, 23 ..	6	6	
,, ,, ,, 30 ..	5	13	
,, ,, Feb. 6 ..	2	13	
,, ,, ,, 13 ..	—	9	Importations of shell-fish from all parts of the United Kingdom and from Ireland.
,, ,, ,, 20 ..	2	14	
,, ,, ,, 27 ..	—	10	
,, ,, March 6 ..	2	5	
,, ,, ,, 13 ..	1	2	
,, ,, ,, 20 ..	—	8	
,, ,, ,, 27 ..	—	4	
,, ,, April 3 ..	—	8	
,, ,, ,, 10 ..	2	8	
,, ,, ,, 17 ..	—	5	
,, ,, ,, 24 ..	—	6	
Five weeks ending May 29 ..	—	23	
Week ending June 5 ..	—	2	Closed season for English and Welsh Shell-fish. Irish & Scotch continue to come in.
,, ,, ,, 12 ..	1	5	
,, ,, ,, 19 ..	2	3	
,, ,, ,, 26 ..	—	5	
,, ,, July 3 ..	1	3	
Four weeks ending July 31 ..	—	11	
,, ,, ,, Aug. 28 ..	—	24	
Week ending Sept. 4 ..	2	6	
,, ,, ,, 11 ..	1	12	
,, ,, ,, 18 ..	—	4	
,, ,, ,, 25 ..	2	5	
,, ,, Oct. 2 ..	3	8	
,, ,, ,, 9 ..	—	9	
,, ,, ,, 16 ..	2	7	
,, ,, ,, 23 ..	2	7	Importation from all parts of the United Kingdom and from Ireland.
,, ,, ,, 30 ..	—	5	
,, ,, Nov. 6 ..	—	5	
,, ,, ,, 13 ..	3	1	
,, ,, ,, 20 ..	1	1	
,, ,, ,, 27 ..	1	3	
,, ,, Dec. 4 ..	1	6	
,, ,, ,, 11 ..	—	5	
,, ,, ,, 18 ..	1	4	
,, ,, ,, 25 ..	—	7	
,, ,, Jan. 1 ..	—	10	

This table corresponds to Table IX. of last year's Report, but has been somewhat amplified. The number of cases in association with the consumption of shell-fish is given side by side with the number attributable to other causes.

One interesting fact is herein shown, that whereas the number of cases in association with shell-fish in and out of season is in the ratio of 7 to 1, the corresponding numbers for those cases due to other causes are 3 to 1. Clearly the association between shell-fish and Enteric Fever is not mere coincidence, if similar figures apply to other years.

The average incubation period in shell-fish cases was 11·9 days.

There is no evidence to show that the two carrier cases mentioned in the Annual Report for 1908 gave rise to any further cases during 1909. One of these cases scrupulously observes the precautions she has been directed to take; the other for a time has been lost sight of.

One more probable carrier case was detected during the year. The diagnosis was made on clinical grounds only, as the subject disappeared as soon as she found that she was being kept under observation. The investigation of her case is as yet incomplete. It is hoped to report the history in detail at a later date.

MEASLES.

The death-rate from Measles is persistently high in Manchester. It is true it has not in recent years reached the great heights attained in 1895, 1896, 1897, and 1899, in which years also it showed itself in a very fatal form in other Lancashire towns. Nevertheless, it continues to rise to considerable amounts, as in 1903, 1904, 1906, 1908, and 1909.

The fatality from the disease appears to be due largely to social conditions, and to be susceptible of considerable modification by the application of appropriate treatment.

In Tables 3 and 4 a view is given of the magnitude of the mortality from Measles as compared with other diseases in Manchester, and it will be seen that amongst the ordinary epidemic diseases it is, after Diarrhœa, the most fatal.

In Table 5 we are table to compare the death-rate in Manchester with that prevailing in other towns, and the country generally. It will be seen that on the average of five years Manchester occupies a bad position relative to other towns, and to the country generally.

Further, the Manchester Township has a much higher death-rate than South Manchester, and South Manchester than North Manchester.

Measles, then, belongs to that group of diseases which is greatly influenced by social conditions, and which includes Phthisis and Diarrhœa. In regard to Measles and Diarrhœa there can be no doubt that the fate of the children attacked is greatly influenced by the amount of care and intelligence used,

by conditions of accommodation, and by the previous health of the children. In fact, the death-rates in individual districts may usefully be studied in association with those from Diarrhœa in any effort to arrive at the social conditions in individual districts. The figures given in Table 6 would point to bad social conditions throughout the whole of the Township and in the individual districts of Bradford and Beswick in North Manchester, of Hulme, Ardwick, and Openshaw in South Manchester.

It is manifest from the course of the annual mortality that we have not by our procedures in Manchester done much towards bringing the disease under control. Our procedure consists in the exclusion of contacts from school for a period of three weeks after the commencement of a case in a household, unless the contact belongs to a class above the infant class, and has besides already suffered from the disease. The cases attending school are themselves excluded for a period of four weeks. Every day a list of children away from school who are suffering from Measles is sent to the Medical Officer of Health from the department of Elementary Education, and the houses are thereupon visited by the District Sanitary Inspector, who instructs the parents in the precautions to be adopted, and takes particulars as to the house, household, etc.

The number of deaths ascribed to the disease in 1909 was 396. If we take the fatality at 5 per cent., the corresponding number of cases would be 7,920; and assuming that half of the attacks were in school children, the number notified from the schools would be 3,960. The number actually notified by the Education Authority was 4,015.

It is evident that the visits paid by the Inspectors to the houses must be a severe drain on their time, the more so that the disease is intermittent in its character, and the probability is that the work is done in a somewhat perfunctory manner. But if it were not, we have no legal power over the parents as regards isolation—no isolation is provided; and seeing that so little trouble is taken in regard to the illness, a large number of the parents take correspondingly little trouble themselves.

Indeed, so lightly do they think of it that there have been instances of children having been sent home from school suffering with Measles, and being sent back directly afterwards as I am informed.

Various proposals have been made for bringing about a better condition of affairs. One of these is to make Measles a notifiable disease. Now there is no use in doing that unless the Authority is prepared to expend a sufficient sum in Sanitary Inspectors to visit and look after the cases. This is the least that should be done. Whether in this way alone much good would be effected may be doubted. We have seen that social conditions make a great difference in the mortality, and something more than this is needed.

Certain it is that practically all the large towns which have adopted compulsory notification have after a time abandoned it, presumably on account of the expense and failure to effect a serious reduction in the disease. Glasgow is a notable exception. But Glasgow has made a considerable amount of hospital provision. It is, however, evident that even this addition has not sufficed to ensure control of the outbreaks, and it is probable that in epidemic periods there is nothing like adequate accommodation for all the cases.

It is possible, of course, that by this means an effect may be produced on the type of the disease, and it is certain that, notwithstanding the crowding and one-roomed tenements in Glasgow, Manchester has somewhat the higher fatality.

Your Medical Officer of Health is not prepared at present to recommend either compulsory notification or adequate hospital provision for the community, although some provision might be made for the protection of institutions.

He would point out, however, that it might well be held that under Section 12 of the Children Act the duty of parents to make proper provision, or at all events the best possible for their children attacked by the disease, might be enforceable. Having regard to the fact that Otorrhœa is liable to follow Measles, and that the prevalent opinion that Tuberculosis is liable to supervene upon an attack, the due care of children attacked might well be held to come under the Section.

As regards isolation, this could only be secured by special powers. It was suggested in a report to the Sanitary Committee, dated August 5th, 1909, that application should be made to Parliament for these powers :—

(*a*) "If any person while suffering from Measles or Whooping Cough wilfully exposes himself without proper precautions against spreading the disease in any street, public place, shop, or inn, or being in charge of any person so suffering exposes such sufferer, he shall be liable to a fine not exceeding five pounds."

(*b*) "Any parent or guardian having a child attending an elementary school shall forthwith notify to the head teacher of the school the occurrence of Measles or Whooping Cough in any member of the family, and in default shall be liable to a fine not exceeding five pounds."

(*c*) "A copy of such notification shall be forthwith transmitted to the Medical Officer of Health for the City."

(2) In the same report it was suggested that in cases in which isolation was impossible at home, children attacked with the disease might be transferred to and treated in certain houses in which only adults are present, the cost of attention being paid by the Corporation.

(3) It is worthy of consideration whether in necessitous cases fuel should not be provided in cold weather to aid treatment. At the same time, instructions in arrangement and isolation could be given.

(4) Papers of instruction might be distributed, and, as suggested by a member of the Committee, placards of advice could be distributed calling attention, *inter alia*, to the fatal character of the disease.

The last three procedures admit of being tried in districts such as Hulme, and might easily be intermitted in so far as they may be found unsuccessful.

(5) As suggested in the joint memorandum by the Chief Medical Officers of the Local Government Board and of the Board of Education, the infant departments of schools might be closed for one week, say between the ninth and sixteenth day after the commencement of illness in any one child found to be suffering from Measles. This suggestion is well worthy of the consideration of the Education Committee.

Table I.

Deaths from Measles in the City of Manchester.

Years	Under One Year			Years of Age				Total 5 Years and upwards
	Under 3 Months	3-5 Months	6-11 Months	1	2	3	4	
1899-1908	16	57	742	1470	599	338	168	168
1909	2	6	78	164	58	37	16	35

Table 2.

Year	1st Quarter	2nd	3rd	4th
1902	67	68	60	47
1903	158	104	54	29
1904	100	189	83	53
1905	41	99	77	13
1906	60	266	118	32
1907	51	73	50	55
1908.....	116	78	71	101
1909	155	164	45	32

TABLE 3.—DEATH-RATES FROM MEASLES AND FROM ALL CAUSES UNDER 5 YEARS OF AGE.

	1894	1895	1896	1897	1898	1899	1900	1901
Measles ...	3·24	7·53	8·48	9·35	4·02	10·31	3·66	4·29
All causes ...	66·5	90·7	80·4	85·3	78·1	87·5	78·3	74·5

	1902	1903	1904	1905	1906	1907	1908	1909
Measles ...	3·51	5·13	6·24	3·10	6·31	2·99	4·58	4·84
All causes ...	64·7	69·5	75·8	59·2	66·6	56·2	60·0	52·1

TABLE 4.

A comparison of the mortality due to Measles with that caused by other zymotic diseases, and by Phthisis, is given in the following figures :—

No. of Deaths from	1892	1893	1894	1895	1896	1897	1898	1899	1900
Measles	369	293	222	505	567	628	271	699	254
Scarlet Fever.....	130	140	116	173	198	124	65	46	105
Diphtheria	91	122	102	72	54	29	41	71	76
Enteric Fever.....	124	127	91	95	118	95	120	73	75
Smallpox.....	2	49	21	2	0	0	0	0	0
Whooping Cough	368	240	286	250	359	299	170	227	371
Diarrhœa, &c.	418	956	375	904	572	964	1090	1121	822
Phthisis	1053	1060	1026	1139	1078	1139	1056	1117	1135

No. of Deaths	1901	1902	1903	1904	1905	1906	1907	1908	1909
Measles	292	242	345	425	231	475	229	366	396
Scarlet Fever	127	146	97	85	78	108	102	92	164
Diphtheria	133	123	136	99	127	119	106	123	113
Enteric Fever	75	66	93	66	55	83	37	75	88
Smallpox	0	0	24	9	0	0	0	0	0
Whooping Cough	224	242	213	280	195	193	314	220	129
Diarrhœa, &c.	1019	296	507	761	729	981	291	591	268
Phthisis	1144	1145	1025	1106	988	1089	1092	1088	1115

TABLE 5.—1909.—MEASLES MORTALITY.—RATE PER 1000 LIVING, COMPARED WITH MEAN OF FIVE YEARS.

	1904	1905	1906	1907	1908	Mean	1909
England and Wales	0·36	0·32	0·27	0·36	0·22	**0·31**	0·35
76 Great Towns	0·47	0·39	0·40	0·43	0·31	**0·40**	0·48
London	0·49	0·37	0·41	0·38	0·31	**0·39**	0·48
City of Manchester...	0·76	0·40†	0·83†	0·39†	0·60†	**0·60**	0·67
Manchester Township ...	0·86	0·64	1·18	0·48	0·70	**0·77**	0·93
North Manchester	0·50	0·39	0·56	0·34	0·54	**0·47**	0·46
South Manchester	0·89	0·28†	0·85†	0·38†	0·59†	**0·60**	0·72
142 Smaller Towns	0·36	0·31	0·22	0·41	0·20	**0·30**	0·33
Rural Districts	0·23	0·24	0·14	0·25	0·13	**0·20**	0·21

† Exclusive of Moss Side and Withington.

TABLE 6.—1909.—DEATHS AND DEATH-RATES FROM MEASLES IN THE VARIOUS DIVISIONS OF THE CITY.

	Statistical Divisions	Estimated Population	Deaths	Death-rate	Average Death-rate 1899-1908
	City of Manchester	654,584	396	0·60	0·61
I.	Manchester Township ...	123,765	115	0·93	0·86
II.	North Manchester.....	202,846	93	0·46	0·54
III.	South Manchester.....	327,973	188	0·57	0·54
I.	Ancoats	43,139	38	0·88	0·99
I.	Central	24,172	19	0·79	0·70
I.	St. George's	56,454	58	1·03	0·83
II.	Cheetham	43,024	6	0·14	0·28
II.	Crumpsall	9,483	2	0·21	0·31
II.	Blackley.....	9,937	6	0·60	0·42
II.	Harpurhey	24,546	15	0·61	0·53
II.	Moston	22,413	7	0·31	0·44
II.	Newton Heath	39,423	21	0·53	0·62
II.	Bradford	25,503	21	0·82	0·92
II.	Beswick	12,679	7	0·55	0·80
II.	Clayton	15,838	8	0·51	0·51
III.	Ardwick	45,841	21	0·46	0·63
III.	Openshaw	29,247	40	1·37	0·64
III.	Gorton (West)	32,699	24	0·73	0·58
III.	Rusholme and Kirk.....	27,325	3	0·11	0·30
III.	Chorlton-upon-Medlock..	55,190	18	0·33	0·47
III.	Hulme	61,890	75	1·21	0·73
III.	Moss Side	28,717	6	0·21	0·11†
III.	Withington	47,064	1	0·02	0·14†

† Average for the four years 1905-1908.

WHOOPING COUGH.

The position of Manchester in regard to the fatality from Whooping Cough and the distribution of that fatality are shown in the following tables. In this disease also, social conditions play a part, though not so great a part as they do in Measles.

TABLE 7.

1909.—WHOOPING COUGH MORTALITY.—RATE PER 1000 LIVING, COMPARED WITH MEAN OF FIVE YEARS.

	1904	1905	1906	1907	1908	Mean	1909
England and Wales	0·34	0·25	0·23	0·29	0·27	**0·28**	0·20
76 Great Towns.....	0·40	0·29	0·28	0·35	0·29	**0·32**	0·24
London	0·33	0·32	0·26	0·38	0·20	**0·30**	0·76
City of Manchester ...	0·50	0·34†	0·33†	0·52†	0·35†	**0·41**	0·21
Manchester Township ...	0·70	0·30	0·34	0·51	0·31	**0·43**	0·15
North Manchester.....	0·47	0·27	0·41	0·35	0·26	**0·35**	0·15
South Manchester	0·42	0·40†	0·26†	0·67†	0·43†	**0·44**	0·28
142 Smaller Towns	0·35	0·23	0·20	0·29	0·25	**0·26**	0·17
Rural Districts	0·27	0·20	0·19	0·21	0·25	**0·22**	0·16

† Exclusive of Moss Side and Withington.

The figures in Table 7 show that over a period of five years Manchester has a comparatively high death-rate from this disease. To some extent this is due to the comparatively high birth-rate of this City, since there are thus in the first and second year of life a comparatively large number of children open to attack, in which years the chief incidences of fatal Whooping Cough and of fatal Measles respectively fall.

South Manchester has, we observe, a slightly higher death-rate than Manchester Township, though a much higher rate in the year 1909, in which year the death-rate for the whole City was comparatively low.

Over the ten years the highest death-rates were experienced in the districts of Ancoats, Bradford, Ardwick, Openshaw, West Gorton, Hulme, and Newton Heath.

Table 8.

The following table shows the districts most affected :—

1909.—Deaths and Death-rates from Whooping Cough in the various divisions of the City.

Statistical Divisions		Estimated Population	Deaths	Death-rates	Average Death-rates, 1899-1908.
City of Manchester		**654,584**	**129**	**0·20**	**0·43**
I.	Manchester Township	123,765	19	0·15	0·46
II.	North Manchester	202,846	31	0·15	0·41
III.	South Manchester	327,973	79	0·24	0·42
I.	Ancoats	43,139	4	0·09	0·52
	Central	24,172	...	...	0·42
	St. George's	56,454	15	0·27	0·43
II.	Cheetham	43,024	2	0·05	0·29
	Crumpsall	9,483	...	...	0·35
	Blackley	9,937	1	0·10	0·27
	Harpurhey	24,546	5	0·20	0·46
	Moston	22,413	3	0·13	0·36
	Newton Heath	39,423	10	0·25	0·49
	Bradford	25,503	6	0·24	0·52
	Beswick	12,679	3	0·24	0·44
	Clayton	15,838	1	0·06	0·41
III.	Ardwick	45,841	20	0·44	0·53
	Openshaw	29,247	8	0·27	0·54
	Gorton (West)	32,699	11	0·34	0·54
	Rusholme and Kirk.	27,325	5	0·18	0·29
	Chorlton-upon-Medlock	55,190	1	0·02	0·33
	Hulme	61,890	25	0·40	0·49
	Moss Side	28,717	7	0·24	0·19
	Withington	47,064	2	0·04	0·13

In 1909 the highest death-rates occurred in Ardwick, Hulme, and West Gorton—all in South Manchester.

The same difficulties which beset the effectual control of Measles apply to Whooping Cough with others special to this disease.

It would be well, therefore, in attempting to deal with these diseases on a definite plan to begin with Measles, and not to attempt control on too large a scale.

SUMMER DIARRHŒA.

The following are the usual statistics relating to Summer Diarrhœa. No special clinical investigations were made in 1909, as owing to the increase in notifications of Phthisis under the Order of the Local Government Board, the Special Enquirers had no time for work on this subject.

The following table shows the course of the Diarrhœal Mortality in 1909:—

1909—Table I.

Deaths from Diarrhœal Diseases in Manchester in the weeks ending on the dates given below.

First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
Jan. 9	4	April 10	1	July 10	1	Oct. 9	12
,, 16	5	,, 17	5	,, 17	7	,, 16	5
,, 23	2	,, 24	4	,, 24	3	,, 23	9
,, 30	3	May 1	3	,, 31	5	,, 30	1
Feb. 6	1	,, 8	1	Aug. 7	11	Nov. 6	4
,, 13	1	,, 15	2	,, 14	12	,, 13	1
,, 20	1	,, 22	1	,, 21	19	,, 20	1
,, 27	...	,, 29	2	,, 28	27	,, 27	2
Mar. 6	...	June 5	4	Sept. 4	26	Dec. 4	1
,, 13	2	,, 12	2	,, 11	18	,, 11	2
,, 20	...	,, 19	2	,, 18	18	,, 18	2
,, 27	...	,, 26	4	,, 25	16	,, 25	1
April 3	...	July 3	4	Oct. 2	8	Jan. 1/10	2
Total...	19	Total...	35	Total ...	171	Total ...	43

City Total 268

Table 2.

The number of deaths in quarters is shown for successive years.

Diarrhœa and Simple Cholera Deaths in Quarters, 1899-1908.

	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	Mean	1909
First Quarter.....	46	41	45	33	48	34	23	32	14	29	**35**	19
Second Quarter..	53	66	32	33	49	38	31	37	18	29	**39**	35
Third Quarter.....	948	562	865	120	303	626	615	780	72	423	**531**	171
Fourth Quarter...	74	153	74	110	107	63	60	132	187	110	**107**	43
	1121	822	1016	296	507	761	729	981	291	591	**712**	268

A comparison of the Diarrhœal Mortality in Manchester with that occurring in other parts of Country may be made from Table 3.

Table 3.—1909.—Diarrhœa and Simple Cholera Mortality.—Rate per 1,000 living, compared with Mean of Five Years.

	1904	1905	1906	1907	1908	Mean	1909
England and Wales	0·86	0·59	0·87	0·29	0·50	**0·62**	0·28
76 Great Towns	1·20	0·83	1·16	0·40	0·65	**0·85**	0·38
London	1·04	0·73	0·94	0·32	0·53	**0·71**	0·33
City of Manchester.....	1·36	1·15	1·54	0·45	0·90	**1·08**	0·41
Manchester Township	1·86	2·09	2·62	0·77	1·58	**1·78**	0·82
North Manchester.....	1:16	1·14	1·23	0·40	0·67	**0·92**	0·35
South Manchester	1·25	0·79	1·29	0·36	0·77	**0·89**	0·30
142 Smaller Towns	1·90	0·57	0·94	0·29	0·52	**0·64**	0·27
Rural Districts	0·46	0·32	0·52	0·18	0·33	**0·36**	0·17

TABLE 4.

The following table supplies meteorological and other data for the third quarter of the year, the season in which the disease is most prevalent :—

Third Quarter of the years	Mean Temperature	Rainfall, Inches	Humidity, per cent.	Diarrhœa and Simple Cholera Mortality. Annual Rate (third quarter) per 1,000 living
1890	58°·8	8·1	74 %	2·28
1891	58°·2	12·8	79 %	1·57
1892	57°·0	12·5	78 %	2·07
1893	60°·4	10·7	74 %	4·95
1894	57°·8	9·0	78 %	1·55
1895	60°·4	11·2	77 %	4·17
1896	58°·5	9·7	76 %	2·93
1897	58°·9	9·7	73 %	6·01
1898	60°·1	6·1	74 %	6·00
1899	60°·8	7·7	75 %	6·96
1900	60°·3	9·6	78 %	4·14
1901	61°·9	6·5	74 %	6·33
1902	57°·6	5·9	78 %	0·88
1903	57°·8	12·3	77 %	2·19
1904	60°·2	6·9	73 %	4·48
1905	58°·9	9·4	76 %	3·89
1906	60°·8	6·2	75 %	4·91
1907	58°·5	7·8	77 %	0·45
1908	59°·2	10·7	78 %	2·61
Mean	**59°·3**	**9·2**	**76 %**	**3·67**
1909	57°·8	10·4	79 %	1.04

The following table permits a comparison of the diarrhœal mortality in the first year of life in the different sanitary districts for the year 1909 and for the ten years 1899–1908.

TABLE 5.—1909.—DEATHS AND DEATH-RATES FROM DIARRHŒAL DISEASES IN THE VARIOUS DIVISIONS OF THE CITY, WITH DEATH-RATES UNDER ONE YEAR PER 1,000 BIRTHS FOR 1909, AND AVERAGE FOR PREVIOUS 10 YEARS.

	1909			Death-rates under one year per 1,000 Births											
	Estimated Population	Total Deaths	Death-rates	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	Average 10 years 1899 to 1908	1909
City of Manchester ..	**654,584**	**268**	**0·41**	**63·7**	**35·6**	**47·5**	**13·0**	**22·1**	**34·1**	**30·8**	**39·8**	**12·2**	**24·0**	**32·3**	**11·1**
I. Manchester Township.	123,765	101	0·82	78·5	47·5	61·6	16·6	31·3	40·9	47·7	58·5	18·0	37·8	43·8	18·9
II. Northern Districts ...	202,846	70	0·35	57·4	24·4	42·3	10·7	15·0	30·1	31·3	30·8	10·3	17·8	27·0	9·9
III. Southern Districts....	327,973	97	0·30	58·7	36·1	43·2	12·4	22·0	33·0	22·5	36·7	10·7	21·5	29·7	8·3
I. Ancoats	43,139	39	0·90	85·0	48·6	57·4	17·1	30·2	35·4	50·9	54·9	21·0	40·8	44·1	17·9
I. Central	24,172	13	0·54	71·1	55·0	66·1	15·0	48·5	51·0	52·4	54·9	19·1	41·3	47·4	13·8
I. St. George's	56,454	49	0·87	76·7	43·4	63·3	16·9	25·5	41·1	43·3	62·8	15·3	34·3	42·3	21·6
II. Cheetham	43,024	10	0·23	36·0	18·0	27·3	9·4	10·1	10·7	18·8	19·6	7·5	10·9	16·8	6·9
II. Crumpsall	9,483	2	0·21	60·9	14·6	23·2	14·9	9·8	15·2	23·9	20·7	..	9·3	19·3	..
II. Blackley	9,937	1	0·10	44·2	4·4	9·2	4·0	12·1	23·5	3·8	3·5	3·7	6·9	11·5	3·5
II. Harpurhey	24,546	8	0·33	72·6	11·3	36·5	1·8	15·9	13·1	21·7	40·1	13·7	11·7	23·8	16·5
II. Moston	22,413	5	0·22	29·1	2·8	19·0	11·7	8·8	25·5	8·4	13·2	2·0	1·9	12·2	5·0
II. Newton Heath	39,423	21	0·53	57·9	25·4	49·7	12·3	15·6	31·4	43·3	36·0	16·8	22·0	31·0	13·3
II. Bradford	25,503	13	0·51	93·3	43·3	62·7	13·2	26·9	52·5	47·7	53·6	8·7	34·6	43·7	12·2
II. Beswick.....	12,679	9	0·71	46·4	40·6	50·0	20·6	8·4	60·8	43·2	23·0	19·0	37·6	35·0	20·2
II. Clayton	15,838	1	0·06	66·7	36·4	94·9	6·2	20·2	38·4	40·1	41·2	7·8	9·8	36·2	2·4
III. Ardwick	45,841	19	0·41	61·7	43·7	48·4	11·5	20·0	38·5	28·7	42·8	12·8	29·0	33·7	13·5
III. Openshaw	29,247	16	0·55	64·3	44·7	48·1	14·2	27·4	28·0	23·9	50·0	8·2	24·7	33·4	14·2
III. West Gorton	32,699	12	0·37	85·7	52·6	58·4	21·2	31·1	47·2	35·1	60·0	28·5	19·6	43·9	11·8
III. Rusholme and Kirk ..	27,325	5	0·18	34·0	15·4	33·3	11·6	14·0	12·7	10·5	21·2	2·4	11·1	16·6	3·4
III. Chorlton-on-Medlock .	55,190	11	0·20	58·7	25·1	17·9	7·1	23·9	23·8	29·1	32·8	13·7	25·9	26·8	5·1
III. Hulme	61,890	29	0·47	49·5	33·1	43·6	12·0	18·7	39·2	22·3	33·6	10·8	28·3	29·1	10·2
III. Moss Side	28,717	..	..	..	..	..	..	..	..	3·5	29·8	1·7	1·6	9·2†	..
III. Withington	47,064	5	0·11	..	..	..	..	..	..	11·2	19·4	2·2	10·3	10·8†	2·2

† Average for Four years.

The death-rate from Summer Diarrhœa is decidedly the lowest on record. This arises partly from the circumstance that South Manchester has been extended. But apart from this, the death-rate would still be the lowest. The diminution is evident in every division of the City. It is, however, not so marked in the Manchester Township, or in South Manchester (without Withington and Moss Side) as it is in North Manchester. (Tables 3 and 5).

This may be owing to the replacement in North Manchester of middens by water-closets during the last three years.

On a comparison with other districts, the death-rate from Diarrhœa will be seen to have relatively improved in 1909 when compared with those of London and the average of the large towns. Not so much as we may hope to see. (Table 3).

As regards distribution in seasons, it will be seen that the fatality is gathered to a greater extent than usual into the third quarter of the year. (Table 2).

It will be seen that the mean atmospheric temperature is comparatively low, and the rainfall is in excess of the mean.

The humidity per cent. was high.

It appears desirable to follow the death-rate into the divisions and districts of the City in 1908 and 1909.

In 1908 the reduction of the death-rate as compared with the previous ten years is greatest in North Manchester. In 1909 it is about equal in North Manchester and South Manchester if we exclude the districts added in 1904.

In 1908 the greatest reductions occur in Crumpsall, Harpurhey, Moston, Newton, Bradford, Clayton, Openshaw, and West Gorton, all formerly midden privy districts. In Beswick, the district containing the Holt Town station for dealing with manure, there is an increase.

In 1909 the greatest decreases occur in Ancoats, Central, Bradford, Clayton, and West Gorton, the last three of which are midden privy districts. But very great diminutions are seen in nearly every district.

The mortality from Summer Diarrhœa in any one locality is dependent on social factors as well as on seasonal conditions.

The poorer and more wretched the population, the more do infants suffer from hereditary causes, and from the combined effects of maternal ignorance and absence of care. They reach the Diarrhœa season in a condition to fall easy victims to the disease.

Very hot seasons are in general attended with high fatality.

The disease is believed to be an infectious one. When the histories of deaths are carefully ascertained, as was done for a number in 1904 and 1905, the occurrence of multiple cases in families is found under circumstances which admits of the existence of a common cause, but suggests infection.

The "direct" infecting power, however, is of low intensity. If the death-rates of districts in Manchester are followed for a number of years, and compared one with another, their behaviour will be found to be similar to that of other infectious diseases.

The manner in which the wave of Diarrhœa occurs annually is strongly suggestive of some infecting agent.

The disease, however, is not of high infective potency, and as the wave rises it occurs rapidly in house after house, attacking in many instances infants not known to have been exposed to infection. The rapidity of this transmission suggests some carrying agent. Now, such an agent exists in the housefly, which is partial to excreta, and under favourable circumstances deposits its eggs in collections of human excreta, in which the larvæ develop, become pupæ, and finally become the fully matured housefly.

Observations have been made in Manchester in five separate years, mostly inside houses, on the numbers of houseflies caught in traps stationed at various points.

When these are collected in weeks, they furnish sample numbers of flies which may be compared with the number of deaths from Diarrhœa in the same weeks. The method is defective in so far as the number of traps is inadequate for sampling. In so far as the fatal cases have been successfully investigated, the numbers commencing in weeks may be collected.

We may then chart out these numbers in curves. When this is done, we find that there is close correspondence between the number of flies caught week by week, and the number of deaths a week or a fortnight after. There is also close correspondence with the number of fatal cases commencing usually in the same week.

This correspondence is, on the whole, closer than that with any other one fact, although there is also correspondence between the curve of deaths and that showing the temperature at a depth of four feet.

By a consideration of the known modes in which the known factors could produce the uprush of fatal Diarrhœa, we are brought to the probability that flies serve to transmit infection from excreta to the healthy, or from the mouth and nostrils of the sick to the healthy.

There may, of course, be some unknown causes which bring about the Diarrhœa wave. But there are collateral circumstances which point to the housefly.

One of these is a rise in the number of notified cases of enteric fever commencing just after the apex of the diarrhœa fatality, which I have called the primary wave. This rise is well marked in 1909 in the 34th-36th weeks.

It appeared to me that if we could divide up the Manchester district into areas and compare the incidence of flies and fatal Diarrhœa we might in this way eliminate common factors, and the significance of close correlation would thereby be enhanced.

The Sanitary Committee were good enough to provide the means for such an enquiry, which was accordingly commenced, but was not concluded because the results proved indeterminate, chiefly owing to the low fatality from Diarrhœa.

The results are given below, two stations, one at Clayton Hospital and one at Mill Street Police Station, being left out of the count.

The numbers caught at both stations were enormous, and such as to swamp and derange the curve.

Further, fly papers were used instead of beer traps, as being cheaper. The result, unfortunately, is to render the actual numbers not comparable with those caught in previous years. In the present year we shall revert to our bell traps, supplemented, I hope, by balloon traps.

1909.—Record of Flies caught week by week in three Divisions of the City, also the Deaths from Diarrhœa. Stick papers used. Stations, 34.

Divisions composed of		21 May 29	22 June 5	23 June 12	24 June 19	25 June 26	26 July 3	27 July 10	28 July 17	29 July 24	30 July 31	31 Aug. 7	32 Aug. 14	33 Aug. 21	34 Aug. 28	35 Sept. 4	36 Sept. 11	37 Sept. 18	38 Sept. 25	39 Oct. 2	40 Oct. 9	41 Oct. 16	42 Oct. 23	43 Oct. 30	44 Nov. 6
Central ..	Flies (8 traps) ...	189	645	584	989	757	1487	1869	2489	3816	4336	6661	8388	9250	6658	5577	3986	4662	4604	—	—	—	—	—	—
Chorlton-on-Medlock ..	Diarrhœa deaths ..	—	—	—	1	—	1	—	1	—	—	2	—	2	3	6	3	4	6	2	6	—	3	1	—
Hulme ..	Fatal cases commencing	—	—	—	—	—	—	—	1	—	—	3	1	3	5	3	2	2	4	4	—	1	—	1	2
Ancoats ..	Flies (12 traps) ..	403	1138	2123	4627	4102	6385	7382	10526	9700	7552	11093	14380	11078	9381	6863	4715	4247	3785	—	—	—	—	—	—
St. George's ..																									
Harpurhey ..	Diarrhœa deaths ..	—	3	—	1	2	1	—	4	—	2	5	5	10	16	12	6	6	4	5	5	1	5	—	3
Newton ..	Fatal cases commencing	1	1	1	2	1	—	3	—	5	3	5	9	20	9	8	2	3	4	—	2	2	2	—	—
Bradford ..	Flies (14 traps) ..	1953	2893	5550	6020	5926	8236	7947	7613	7597	8874	10392	10327	10840	10160	12644	9439	7440	7157	—	—	—	—	—	—
Beswick ..																									
Clayton ..	Diarrhœa deaths ..	2	—	—	—	—	2	1	1	1	3	4	7	5	6	6	5	5	4	1	1	2	1	—	—
Ardwick ..																									
Openshaw ..	Fatal cases commencing	2	—	—	1	1	1	—	4	2	6	4	4	5	6	2	1	2	3	2	1	—	—	—	—
West Gorton ..																									
Total number of flies		2545	4676	8257	11636	10785	16108	17198	22028	21113	20762	28146	33095	32168	26199	25084	18140	16349	15546	—	—	—	—	—	—
Total deaths, diarrhœa		2	3	—	2	2	4	1	6	1	5	11	12	17	25	24	14	15	14	8	12	3	9	1	3
Cases Commencing		3	1	1	3	2	1	3	5	7	9	12	14	28	20	13	5	7	11	6	3	3	2	1	2
Deaths according to date of onset ..		3	1	2	3	2	1	5	6	8	6	13	17	32	21	15	6	7	12	6	5	2	3	2	2
Mean temperature of air		55·8	53·9	51·0	56·1	55·2	57·7	58·6	58·5	58·3	57·8	60·2	64·6	65·6	56·9	54·0	53·3	53·8	53·3	55·0	54·6	54·1	54·2	41·8	48·4
Temperature at 4 ft. underground ..		49·6	51·1	52·0	52·4	53·4	54·0	54·9	55·9	56·6	57·0	57·0	57·4	58·6	58·9	58·3	57·4	56·4	55·6	55·1	55·0	54·8	54·0	53·6	51·6
Temperature, 1 ft.		54·0	54·5	53·2	55·4	56·7	55·8	59·3	59·3	59·7	58·5	58·8	61·9	62·2	58·9	56·9	55·3	54·1	53·8	54·5	55·1	53·3	52·6	47·1	45·0
Rainfall		1·150	0·320	0·060	0·235	1·400	0·390	0·780	0·795	0·320	2·525	0·370	0·040	2·035	0·505	0·625	0·850	0·010	0·665	0·840	1·350	1·730	1·705	0·515	0·080

Some little interest has been taken in classifying the flies caught. They were nearly all either the musca domestica (larger housefly) or the homalomyia (smaller housefly). The smaller housefly has a closer association with human excreta than the larger housefly, and makes its appearance in numbers about a month earlier.

Observations by Dr. Sellers on a number of flies caught in houses and transmitted to Professor Delépine's laboratory in a manner devised by him to avoid infection from extraneous sources after capture were recorded in the report of the Medical Officer of Health for 1906. They show that flies as ordinarily captured carry on their bodies a great multitude of micro-organisms, although of coli bacilli there were found on over 200 flies only five representatives. If a coli bacillus is responsible for the spread of Diarrhœa, of which there is as yet no proof, it would appear as if we must suppose the visits to food of a large number of flies, and these more than usually contaminated, to cause infection.

Nevertheless, in a very large number of houses in Manchester during the fly season excessively large numbers of flies have been found, or, later in the season, their traces have been visible on the walls. These come apparently chiefly from tips of refuse, and from collections of horse manure. It has been thought desirable to deal with the latter and greater source of the fly nuisance first, and bye-laws are now in force by means of which the suitable storage of horse manure and its removal at intervals not exceeding a week can be secured, if sufficient inspection can be given. It may be hoped, also, that the time is not far distant when all large collections of fermentible matter within the City will be done away with.

But the way of improvement is slow.

The observations on flies made in Manchester have been collected and discussed in a communication to the Royal Society of Medicine, a copy of which has been sent to every member of the Sanitary Committee. Should members of the Council desire a copy, reprints are available.

There is no reason to suppose that it has any special power of producing infection. The observations made were as follows :—

1909.—*Classification of Species of Flies caught at certain Stations.*

STATIONS WITH NAME OF OBSERVER.

64, Jenkinson Street, Chorlton-upon-Medlock. Dr. NIVEN.				Mill Street Police Station, Bradford Dr. HUTCHINSON.				23, Lorn Street, Hulme. Mr. ROOS.				85, Tame Street, Ancoats. Mr. LOCK.				17, Barton Street, Deansgate. Dr. M. M. SMITH.				8, Travis Street, London Road. Mr. E. DUNKS.			
Observations from	Musca domestica	Homalomyia	Others	Observations from	Musca domestica	Homalomyia	Others	Observations from	Musca domestica	Homalomyia	Others	Observations from	Musca domestica	Homalomyia	Others	Observations from	Musca domestica	Homalomyia	Others	Observations from	Musca domestica	Homalomyia	Others
June 16 to Aug. 26	2044	26	16	June 16 to July 29	3664	129	27	June 16 to Aug. 12	1248	83	—	June 30 to Aug. 10	452	4	3	July 2 to Aug. 11	316	37	18	July 9 to Aug. 12	472	14	—

TOTALS—Musca Domestica	8196	Examined for sex * 524—males 310, females 214
Homalomyia	293	,, ,, ,, 84— ,, 49, ,, 35
Others	64	
	8553	

* So far as these limited observations go, females predominated early in the season and males later.

PREVENTION OF INFANTILE MORTALITY.

The Medical Officer of Health begs to present the report of Miss E. Howard on the work done during the year 1909, and a statement of some of the results of the inquiry carried out for the Home Office during the year 1908 in the district of Ancoats. The supervision of this work fell on Miss Eleanor S. Greg, whose voluntary and devoted service cannot be too highly recognised. Prior to her retirement in April, 1909, a statement was presented to the Sub-Committee on the Children Act, 1908, and instructions were given that Section 12 of the Act be reprinted with appropriate comments, and copies sent, together with the letter of the Deputy Town Clerk, to all the Medical Practitioners in Manchester ; that *mutatis mutandis* the same be done, and copies sent to Midwives, Health Visitors, District Nurses, Sanitary Inspectors, Social Workers, and to the Clergy in Manchester ; also that the Medical Officer of Health be instructed to communicate with the Chief Constable with a view to instructions being given to the Police Force on the subject.

At a meeting held on April 15th, 1909, Miss E. Howard was recommended for the position of Lady Superintendent of Health Visitors at a salary of £120 per annum—a recommendation confirmed by the Sanitary Committee and by the City Council.

The work of the Health Visitors was reported upon by the Medical Officer of Health on January 20th, 1909, in which their duties are defined.

The subject of the appointment of Health Visitors for the district of Bradford was raised at two successive meetings, but no appointment was made.

Nevertheless, in this and adjoining districts of North Manchester, Health Visitors are badly needed. For the same reason it is important that all births should be notified in the districts covered by Health Visitors as early as possible.

Admirable work has been done by the Mothers' Guild, which appears likely to take a permanent and increasing part in the ameliorative work of the City.

STATEMENT OF THE WORK OF THE HEALTH VISITORS IN 1909.

By Miss E. Howard, Lady Superintendent.

I beg to submit the following report on the work of the Health Visitors during the year 1909.

The Health Visitors' staff consists of 6 certificated Visitors receiving 30/- a week, and 9 other Visitors who were taken over from the Ladies' Public Health Society in 1908 by the Corporation, and whose salaries vary from 18/- to 25/- a week. Some of the Health Visitors have assisted in the clerical work, chiefly Miss Sefton, who has rendered great assistance.

The list of duties of the Health Visitors was set forth in the Annual Report for 1908, and no material alteration has since been made. Taking the list in the order given, that of visiting infants under 12 months of age occupies the first position, and has formed the major portion of the work done. From the annexed table it will be seen that no fewer than 4,399 primary and 36,926 subsequent visits were made to infants during the year. In addition to these, very many infants are seen when visiting the house for other purposes; and although such visits are recorded otherwise, the opportunity for imparting instruction and friendly advice in regard to the infant is not lost.

Notified cases of Phthisis involved 4,675 visits, and of these 1,919 were paid to see that regular cleansing had been observed, and 2,756 visits in order to actually superintend the cleansing being done, either by the Corporation or by the tenants.

The house-to-house inspections and re-inspections amounted to 8,298, the respective figures being 2,789 and 5,509. As a result of these inspections, 993 defects of various kinds were referred to the Sanitary Department to deal with. Apart from the work done with this assistance, the Health Visitors record no fewer than 5,210 rooms, yards, sculleries, etc., as having been lime-washed with material supplied by them. They also report 356 defects remedied without the intervention of the Sanitary Inspectors, and, further, 939 rooms, etc., cleansed other than by limewashing. It may here be remarked that with one or two exceptions the limewashing material is no longer stored at the homes of the Health Visitors, but through the kindness of Mr. Williamson, Superintendent of the Cleansing Department, a stock is kept at the Holt Town, Oldham Road, and Water Street Cleansing Depots. The Health Visitors are furnished with small printed forms, in duplicate, on which they enter the amount of lime to be given and brushes required. The form is then handed to the applicant, who presents it at the nearest depot, and is thereupon supplied with the stipulated quantity, the note being held as a receipt to be given back on return of the brushes.

Important as the foregoing duties are, there are other duties which require careful attention and the exercise of much discretion and tact on the part of the Health Visitors.

Thus from the statement it will be seen that 489 cases of neglected children were reported. This means that the children had been kept under observation and the parents warned, but as no improvement could be effected they were then reported, and the attention of the N.S.P.C.C. drawn to them through the Medical Officer of Health. The amount of good done in this way is not so great as may be wished, but, no doubt, Section 12 of the Children Act will come to be more stringently enforced in course of time.

In the course of their work the Health Visitors found 360 families in such poor circumstances as to require immediate help, and whilst there is no Corporation fund available for such cases the Visitors felt bound to call attention to them. Many were relieved through the kindness of the Ladies' Public Health Society and the City League of Help, whilst others were reported to the Guardians and the District Provident Society. In all cases an effort was made to obtain assistance.

With a view to ascertaining the genuineness of the cases, the Medical Officer of Health, by instruction of the Committee, carried out an enquiry into 18 of the cases of distress so reported. He found in nearly every instance that the distress experienced was caused by loss or irregularity of employment, but what led to the original loss of work would have required a larger amount of investigation than it was possible to give. In two instances it appeared that the family should have got through, but in all the other cases the means available and divulged were insufficient to maintain the family in a healthy condition.

Owing to the great distress amongst the poor during the winter, the members of the Infant Life Preservation Sub-Committee kindly supplied a quantity of dried milk to be given in necessitous cases to infants under 9 months of age. Each child supplied with the milk is visited and weighed once a week, and the result will be issued in a special report later.

We have also to thank the Lord Mayor for 10 Charity Forms, which entitled us to 60 yards of flannel. This, through the kindness of a member of the Committee, was made into 94 garments for infants and distributed to deserving cases throughout the winter.

888 other recommends for the Boys' and Girls' Summer Camps, Lord Mayor's Charity Forms, etc., were given away during the year by the Health Visitors.

In 1908 an enquiry into the employment of married women and its effect on infant mortality was undertaken in several of the large towns of England at the request of the Home Office.

This enquiry, which in Manchester was confined to the district of Ancoats, was not completed until December, 1909, as every child born in Ancoats was visited until 12 months old. The enquiry entailed considerable labour on those who were engaged upon it, as it was in addition to their ordinary duties. A fuller statement in regard to this enquiry is given by the Medical Officer of Health.

The Health Visitors have assisted at 323 Mothers' Meetings held in connection with the Ladies' Public Health Society. The average attendance at these meetings was 38.

A summary of the work for the year 1909 faces this page.

STATEMENT OF WORK DONE BY THE FEMALE HEALTH VISITORS DURING THE YEAR 1909.

Districts	House-to-house inspection									Re-Inspections																						Infants Visited		Visits re Phthisis			Visits re Death Cards	Reports as to Neglected Children	Reports as to Cases Requiring Assistance	Help rendered chiefly by the Ladies Health Society				Recommends given or Cases investigated	Mothers Meetings by L.H.S.	
										Work done under direction of Health Visitors															Work done through Sanitary Deparment																			
										Limewashing									Cleansing other than Limewashing						Defects remedied			Cleansing																	
	Number	Overcrowded	Disrepair	Dirty	Cellar dirty or in disrepair	Yards defective	Closets defective	Houses with defects	Others	Number	Bedrooms	Kitchens	Yards	Closets	Cellars	Coalplaces	Ceilings	Staircases	Others	Overcrowding abated	Defects remedied	Rooms	Cellars	Yards	Closets	Others	Overcrowding abated	Partly	Wholly	Houses	Cellars	Yards	Closets	Primary	Subsequent	Monthly	Corporation	Tenants				Milk	Food	Clothing	Others		Number	Average Attendance
Ancoats—West	115	3	27	9	...	20	10	18	35	530	68	28	88	91	2	4	47	17	21	...	...	4	...	...	...	...	...	...	1	2	...	...	...	284	2379	161	47	233	53	187	105	44	145	46	50	137	...	...
„ North	215	4	5	38	9	7	10	13	15	289	56	53	95	97	15	23	31	5	...	1	6	42	3	...	...	...	...	3	10	...	...	...	...	367	2975	117	61	157	65	13	10	12	10	58	8	133	42	32
„ Central	179	1	34	41	4	29	37	43	53	253	12	27	70	68	5	2	6	3	4	...	4	2	1	4	16	...	...	3	32	...	...	...	...	247	2973	116	35	97	68	19	42	7	3	16	4	33	...	...
„ South	333	6	54	149	14	41	58	57	27	954	46	104	199	203	41	15	78	29	1	...	47	227	...	8	17	3	2	4	19	7	...	...	...	252	2723	140	22	140	82	8	20	196	4	81	7	54	32	93
„ East	58	1	17	23	...	19	15	36	100	166	20	33	67	67	...	2	19	10	...	...	...	7	...	...	...	...	4	2	40	...	...	...	...	246	2217	83	14	60	38	31	14	92	62	103	65	79	41	53
London Road	409	15	189	184	33	130	80	10	54	990	198	103	287	292	39	24	61	27	1	1	112	164	8	4	3	2	...	10	27	3	1	...	...	238	3025	128	12	190	85	32	10	2	9	17	14	101	13	12
Deansgate	165	3	51	127	2	24	22	23	25	818	112	86	175	189	24	27	103	89	14	1	67	235	4	33	22	2	1	2	26	...	...	...	...	210	1749	125	62	180	69	14	19	52	29	24	4	23	38	31
St. George's—North	136	3	43	19	11	...	18	35	20	34	12	9	25	26	...	...	10	6	4	...	...	3	...	...	...	1	...	...	3	...	...	...	...	405	2650	182	85	227	107	5	2	100	35	5	...	37	34	33
„ East	234	...	7	6	8	15	18	21	5	184	13	31	80	83	3	...	4	1	...	...	22	4	...	1	1	...	...	...	1	...	...	...	...	351	2785	186	126	241	111	2	1	48	12	5	...	29	31	24
„ Central	285	6	89	78	6	59	46	75	39	279	7	8	89	74	...	...	2	3	2	...	22	26	2	10	12	...	3	7	27	...	...	...	...	256	2467	86	59	29	49	74	15	3	8	18	4	56	29	14
C.-on-M.—North	248	...	21	44	22	21	21	11	21	393	42	69	119	124	19	25	29	10	4	...	28	9	...	...	...	...	...	1	23	...	...	...	...	283	3111	260	167	191	64	...	17	24	13	27	15	94	37	43
„ South	164	...	49	43	31	9	15	72	35	188	3	10	17	17	2	...	8	2	...	...	21	11	2	3	...	...	...	...	33	...	1	...	...	399	2479	79	44	39	86	16	50	12	6	27	6	7	...	...
Hulme—Central	67	2	12	16	4	7	11	11	30	79	19	21	38	38	8	...	4	7	3	...	...	5	3	1	1	...	...	1	...	...	...	...	424	2321	107	9	123	74	55	24	14	8	15	3	78	26	29
„ East	181	7	73	83	14	34	17	42	67	352	21	14	116	117	25	4	49	7	4	...	24	29	2	...	1	1	...	2	22	...	...	...	...	437	3072	149	61	145	86	33	31	5	...	16	5	27	...	...
Total	2789	51	671	860	158	415	378	467	526	5509	629	596	1465	1486	183	126	451	216	58	3	353	768	25	64	73	9	10	35	264	12	2	...	...	4399	36926	1919	704	2052	1037	489	360	611	344	458	185	888	323	38

The Health Visitors have also rendered valuable service to the Mothers' Guilds in sending them the most suitable cases.

A course of instruction on matters relating to their work was given to the Health Visitors during the summer months by the Medical Officer of Health, and on the subject of infant feeding by myself.

My work has been chiefly that of supervision, examination of reports, and preparation of statements, although I have paid many visits to the districts partly to control the work of the Health Visitors and partly in reference to special cases. The reports concerning neglected children and the families in distress have also involved considerable correspondence.

In conclusion, I desire to take this opportunity of thanking the Chairman and members of the Infant Life Preservation Sub-Committee for the unvarying kindness and consideration shown in all the matters appertaining to the Health Visitor's work.

A summary of the work done by the Health Visitors under the supervision of the Ladies Society for Visiting the Jewish Poor and of the Medical Officer of Health is given in the following table. They attend once a week at the Public Health Office in order that the week's work may be reviewed.

Work of the Jewish Health Visitors, year ending 31st December, 1909.

DISTRICT	Houses Visited		Condition of Houses							No. of Houses containing Lodgers	Complaints requiring action by Sanitary Department	Sickness			Leaflets left at Houses
	First Visit	Not First	Dilapidated	Not Dilapidated	Clean	Dirty	Improved since last Visit	Not Improved	Overcrowded			Infectious	Non-Infectious	Total Sickness	
Red Bank	...	999	540	459	834	165	110	889	...	443	263	2	380	382	191
Strangeways	...	733	88	645	715	18	7	726	...	274	110	4	102	106	711
Total	...	1732	628	1104	1549	183	117	1615	...	717	373	6	482	488	902

DISTRICT	Disinfecting Powder left at Houses	Limewashing								Reports as to Children being Neglected (clothing, food, &c.)	Help Rendered	Infants Visited	Visits re Phthisis	Re-inspection of Houses
		Living and Bed Rooms	Kitchens	Yards	Closets	Cellars	Coal-places	Ceilings	Staircases		Help rendered includes :—Giving food, clothing, &c., advising mothers as to care and treatment of children, making of sick beds, cleaning houses for sick persons, obtaining recommends for Convalescents, &c.			
Red Bank	618	8	17	72	52	8	...	...	3	...	52	1066	153	1331
Strangeways	677	...	30	139	92	97	...	17	1	...	120	930	124	493
Total	1295	8	47	211	144	105	...	17	4	...	172	1996	277	1824

THE INQUIRY FOR THE HOME OFFICE ON THE EFFECT OF THE OCCUPATION OF THE MOTHER ON THE HEALTH OF HER INFANT.

In the course of his inaugural address to the Conference on Infantile Mortality, held in London in the year 1906, Mr. John Burns made this observation: "I put forward this modest proposal that no married woman be allowed to go to work three months before her confinement, and I would support a proposal that no married woman be allowed to resume work till six months after it." It is manifest that the withdrawal of the mother's care must be injurious not only to her infant but also to the rest of her children. It was held by a number of people, however, that the injury inflicted on the infant and the other children might be more than counterbalanced by the addition made to the family means through the mother's work, and it was manifest that the withdrawal of the mother from her place in many employments would mean her permanent displacement.

It was even denied that in the aggregate serious injury is inflicted on the children.

Under these circumstances the Home Office, which is officially concerned with the employment of married women, determined to hold an inquiry into the questions under consideration, and requested a number of Medical Officers of Health to assist them in doing so. The form of inquiry was settled at a meeting held at the Home Office, and concerned the children born in 1908 who either died during the first year or lived for 12 months.

Permission was asked and was granted by the Manchester Sanitary Committee to hold the inquiry.

The district of Ancoats was chosen, because it was expected that the forms would be best filled up in that district, and was divided amongst five Health Visitors. The progress of the work was supervised and directed by the former Superintendent of Health Visitors, Miss S. Eleanor Greg, and it was taken over in 1909 by Miss E. Howard, who, with the assistance of the Office Staff, has filled in the working sheets supplied by the Home Office, on which the final returns have been entered. The labour involved has been very considerable It may be added that owing to a misunderstanding no effort has been made to enter the particulars in regard to all the still-births available. The district of Ancoats is one of the three central districts comprising the Manchester Township which have been conspicuous for a high infantile mortality. It lies in the basin of the river Medlock, just before the land through which it runs on its way to the Mersey opens out into the flat plain of Hulme. The houses are for the most part old, and many of them have been built for more than a hundred years. With the exception of a tongue of newer and better houses running up in the direction of the Bradford Road Gas Works the houses are without damp proof walls. In the portion nearest to the centre of the City the streets are narrow and the houses dark. Many of them are damp, and not

infrequently they are over-shadowed by cotton mills and other buildings. There were in this part of the City 20 years ago a number of courts, and many back-to-back houses, which have for the most part disappeared as such. Also the district contains four of the Corporation improvement areas. The drainage has been largely reconstructed, and the pail closets are disappearing. The principal occupations pursued by men are, all over the district, in ironworks and cotton mills, and in the pursuits followed in all communities. In the part of the district nearest to the Medlock are men employed in the Holt Town Cleansing Works. Many are employed in the gas works, and a few in the Oldham Road Cleansing Department's works. Near the town are hawkers, ice-cream makers, organ-grinders, and French polishers; also persons employed in the waste factories and rag-sorting. Higher up are men engaged in glass works, and in a flour mill.

A considerable proportion of those living in the district are engaged in labour of a poor class in the Shudehill Market and elsewhere.

The occupations pursued by the fathers of the children born in 1908 who came under the observation of the Health Visitors are classified in the following table, which gives a good idea of the occupations pursued.

TABLE SHOWING THE OCCUPATIONS OF THE FATHERS OF CHILDREN BORN IN ANCOATS DURING 1908, SUB-DIVIDED INTO THE HEALTH VISITORS' DISTRICTS.

Occupation	Ancoats					Total
	West	North	Central	South	East	
Workers on Railway	22	36	30	53	26	167
Labourers	109	163	80	92	126	570
Iron Workers	10	34	17	41	30	132
Hawkers	13	12	12	1	4	42
Shopkeepers	8	12	9	12	3	44
Cotton Operatives	1	6	1	3	13	24
Wood Workers	7	14	6	1	3	31
Warehousemen	7	7	5	5	4	28
Porters	13	4	6	12	4	39
Painters	2	4	5	2	4	17
Glass Workers	4	3	3	5	2	17
Tailors	5	1	4	5	2	17
Brickmakers	4	5	..	4	5	18
Organ Grinders	11	..	..	..	..	11
Box and Basket Makers	2	2	2	4	1	11
Clerks	1	3	3	4	5	16
Beerhouse Keepers	3	3	2	2	..	10
Bakers	2	5	1	1	1	10
Umbrella and Stick Makers	3	1	2	3	..	9
Colliers	1	1	1	4	1	8
Cloth Workers	1	2	..	2	3	8
Stablemen	3	..	2	2	1	8
Ice Cream Vendors	7	..	1	..	..	8
Upholsterers	..	4	..	1	2	7
Gas Workers	..	..	..	1	3	4
Others	28	38	25	28	32	151
Total	267	360	217	288	275	1,407

The occupations pursued by the mothers prior to marriage are shown in the following table:—

ANCOATS.—OCCUPATIONS OF MOTHERS BEFORE MARRIAGE.

	Complete												Incomplete					
	Total						Infant Died											
	W.	N.	C.	S.	E.	Total	W.	N.	C.	S.	E.	Total	W.	N.	C.	S.	E.	Total
Not industrially employed	30	16	12	12	11	81	8	6	1	..	1	16	2	2	5	1	2	12
Cotton Mill..	50	96	72	97	104	419	19	25	7	17	23	91	12	41	11	14	28	106
Other skilled occupation	34	89	46	68	49	286	36	18	11	15	10	90	9	24	13	20	19	85
Waste works	6	6	11	9	..	32	12	1	4	2	..	19	1	4	1	3	..	9
Rag Sorters	2	19	15	9	20	65	..	4	1	1	2	8	..	6	9	1	11	27
Domestic Service	8	21	17	23	18	87	6	3	7	3	4	23	2	11	4	2	9	28
Charing and Cleaning	3	..	1	..	..	4	5	..	1	..	..	6	1	..	4	1	4	10
Other unskilled (including shops) ..	33	15	14	16	3	81	14	6	2	5	1	28	8	8	2	3	3	24
Hawkers	4	1	..	1	..	6	1	1	..	..	..	2	..	..	..	..	..	..

These tables give so valuable an insight into the class of fathers and mothers that the figures have been given for each district as well as for the entire area.

It appears needless to amplify these statements or to comment upon them further than to state that there is high fatality amongst the infants of mothers who have worked in cotton mills or at other skilled occupations.

The population of Ancoats in the middle of 1908 was estimated at 43,206 persons. The mean birth-rate for the ten years 1891–1900 was estimated at 37·98 per 1,000, while in 1908 it was 35·25 per 1,000. The mean death-rate for the ten years was 30·248 per 1,000, while in 1908 it was 24·72 per 1,000. These figures indicate a great improvement in the health of the district, which would appear from the figures for other recent years to be of a permanent character.

Nevertheless, the improvement in infantile mortality has not kept pace with that at all ages. In 1908 the number of deaths per 1,000 born was 187, as against 204 in the ten years 1899–1908.

In this statement it is not proposed to follow closely the returns sent to the Home Office, but to restrict attention to certain broad questions.

It is proposed first to analyse the effects of breast-feeding. The mothers are grouped in four different classes, viz., those who did not work in the year preceding or in the year following the birth, those who worked only in the year before the birth, those who worked only in the year following the birth, those who worked both before and after the birth.

From these data and from the deaths we shall be able to construct tables of mortality in the different months of the first year according as the infants are wholly breast-fed or not wholly breast-fed.

These results will throw light on the results of work carried out before and after the birth.

The effects of poverty on the infantile mortality in this district will then be considered.

Finally the effect of the size of the family on occupation and mortality will be considered.

This inquiry throws light on other questions, but this statement will be restricted to the above points since they appear to be sufficient to clear up the chief questions raised, and because the methods have themselves some interest.

The relation of occupation to breast-feeding and to infant mortality.

The following table, which is the foundation for consideration of this question, has been prepared in the main by Miss Howard with the assistance of the Staff. The same observation applies to the other foundation tables.

Births in Ancoats, 1908. Occupation in its Effect on Breast-feeding.

(Summary of Completed Cases.)

Duration of Breast-feeding in First Year in Four Weekly Periods.

	Not breast fed.		0—4 weeks.		—8		—12		—16		—20		—24		—28	
	Lived.	Died.	L.	D.	L.	D.	L.	D.	L.	D.	L.	D.	L.	D.	L.	D.
Not employed before the birth of the child nor after ...	8	48	25	24	22	17	20	16	15	4	31	6	14	2	24	4
Employed before but not after the birth.	2	14	4	11	5	5	4	3	4	3	4	2	9	1	12	..
Total not employed after the birth...	10	62	29	35	27	22	24	19	19	7	35	8	23	3	36	4
Employed after but not before the birth	..	..	2	1	6	1	7	2	7	1	5	..	5	1	6	..
Employed before and after the birth	6	6	9	3	23	9	23	6	18	3	10	3	10	2	8	1

	—32		—36		—40		—44		—48		—52		Total		
	L.	D.	L.	D.	L.	D.	L.	D	L.	D.	L.	D.	L.	D.	All.
Not employed before the birth of the child nor after ...	54	3	76	6	94	3	53	1	40	..	30	1	506	135	641
Employed before but not after the birth.	13	1	13	2	14	..	9	..	..	..	3	..	96	42	138
Total not employed after the birth...	67	4	89	8	108	3	62	1	40	..	33	1	602	177	779
Employed after but not before the birth	8	..	7	..	3	1	4	..	..	..	1	..	61	7	68
Employed before and after the birth	10	1	15	1	13	..	8	..	10	..	4	..	167	35	202

It should be observed that two still-births have got into the 48 deaths in the first column. They have been retained, as all the calculations would otherwise have had to be made over again, and as they are eliminated at the outset, they affect no conclusions.

The living and dead in each column of this table mean that the persons breast-fed during the period marked L lived to the end of the first year of life, while those marked D died in the course of the first year, but not necessarily in the period in which they occur in the table.

We first of all observe the great accumulation of deaths about the commencement of life among those who had not worked in the year before the birth or after, and among those who worked before but not after.

This would mark a class of enfeebled mothers who have become unfit for the production of healthy children, and also for the resumption of work. This will appear more clearly from the following tables. We may put the matter thus : On the average the mothers who do not work, or work only before the birth, are much less vigorous, and have infants much less healthy at first than the mothers who work after the birth. This influence in raising the infantile death-rate permeates the early months, and cannot be eliminated or separated. But what it would be fair and even necessary for a proper comparison to do, seeing that the great majority of mothers occupied outside the home work in a factory or workshop, is to leave out of the comparison the first four weeks during which they are not permitted to return to work.

In the absence of such elimination we find that amongst those not working the infantile mortality was 211 per 1,000 infants, amongst those working before only, 304, amongst those working after only, 103, amongst those working before and after, 173.

This relates only to completed cases. The infants removed and lost sight of number about one-fourth of the total, and if completed would no doubt reduce the mortalities and somewhat alter the order.

The above table does not enable us to eliminate the deaths taking place within the first four weeks. But we may anticipate, and state that these number in the respective classes 54, 21, 0, and 3. The infantile mortalities on the removal of these become respectively 138, 179, 103, 161. The effect of occupation thus becomes more evident.

We may now construct a table showing the rate at which breast-feeding diminishes from month to month in the respective classes. Thus, taking the 641 children of those who did not work before or after the birth, we subtract 56 who were never breast-fed wholly, and we get 585 entering the period 0–4 weeks. Subtracting the 49 who ceased to be breast-fed in that period we get 536 who entered the next four-weekly period being wholly breast-fed, and so on.

In this manner we construct the following table:—

BREAST-FED ALONE ENTERING THE FOLLOWING TERM OF WEEKS.

	0—4	—8	—12	—16	—20	—24	—28	—32	—36	—40	—44	—48	—52
Not industrially employed	585	536	497	461	442	405	389	361	304	222	125	71	31
Industrially employed before the birth only	122	107	97	90	83	77	67	55	41	26	12	3	3
Industrially employed after the birth only	68	65	58	49	41	36	30	24	16	9	5	1	1
Industrially employed both before and after the birth	190	178	146	117	96	83	71	62	51	35	22	14	4

From this table we see how much more rapidly infants cease to be wholly breast-fed amongst those who work before and after the birth than they do amongst those not industrially employed. While in the former class the numbers are reduced to less than one-half before the 24th week of life, it is not until the period ending in the 40th week that this point is reached in the latter class. Now, no fact is better established than the great importance to the health and life of the child of poor parents that he should be wholly breast-fed. It follows that if the children were of equal vigour at birth those of the occupied mothers would suffer much more heavily than those of the not occupied mothers.

We must next distribute into the periods in which they occur the deaths occurring during breast-feeding, the deaths which may be due to artificial feeding, and those of children who have never been wholly breast-fed.

In this classification a death which occurs at an interval of two weeks or less after cessation of breast-feeding is assigned to breast-feeding. The periods are not precisely accurate.

By means of this table we may now construct one showing the deaths up to the end of each four-weekly period of life. As the table will be used presently the figures need not be separately given here.

We can now construct a table for the infants of those who did not work before or after the birth, showing the number entering each successive period who were not wholly breast-fed, as follows :—Taking out the 39 deaths which occurred at or within two weeks of birth we have definitely entering the 0—4 period 602 infants, of whom by the previous table 585 were breast-fed ; 8 we find lived through the first year and 9 died subsequently.

Now, at the entrance to any subsequent period these 602 infants must be accounted for if we know the number entering that period wholly breast-fed, the total number who have died before this point, and the number who enter it not wholly breast-fed.

During the preliminary analysis the interval between cessation of breast-feeding and death was noted, but the exact date of the cessation of breast-feeding was not recorded. These figures have been used instead of going back to the sheets, but the result will be approximately correct. The table is as follows :—

DEATHS AT AGES IN WEEKS AS UNDER.*

	0—4	—8	—12	—16	—20	—24	—28	—32	—36	—40	—44	—48	—52
Not industrially employed—													
During breast feeding	14	13	6	2	3	1	2	1	1	2	1	..	1
Afterwards	..	1	2	2	2	6	4	3	3	4	4	3	6
Never wholly breast-fed	1	2	..	3	2	1	..	..	..	..	..	..	..
Industrially employed before the birth only—													
During	5	3	1	1	2	..	..	..	1	..	..	..	..
Afterwards	..	2	2	..	3	..	2	2	..	1	2	..	1
Never	1	..	..	..	..	..	..	..	..	..	..	..	..
Industrially employed after the birth only—													
During	..	..	..	1	..	1	..	..	..	..	..	..	..
Afterwards	..	..	..	1	..	..	..	2	..	1	..	..	1
Never	..	..	..	..	..	..	..	..	..	..	..	..	..
Industrially employed both before and after the birth—													
During	..	..	..	1	1	..	..	1	..	..	..	..	..
Afterwards	..	..	..	4	5	3	..	3	5	4	..	1	1
Never	..	..	..	..	1	..	1	..	..	..	..	..	1

* The deaths at or within a fortnight of birth do not appear in this table. They number in the non-industrial section 39, in those who worked only before 13, only after 0, before and after 3.

We thus get the following table :—

TABLE SHOWING THE NUMBER ENTERING EACH SUCCESSIVE FOUR-WEEKLY PERIOD WHOLLY BREAST-FED AND NOT WHOLLY BREAST-FED, ALSO THE NUMBER OF DEATHS PRIOR TO THE PERIOD.

			0—4	—8	—12	—16	—20	—24	—28	—32	—36	—40	—44	—48	—52
Mothers not occupied before or after the birth	641	Wholly breast-fed	585	536	497	461	442	405	389	361	304	222	125	71	31
	Died 39														
	602	Dead ..	..	15	31	39	46	53	61	67	71	75	81	86	89
	Lived—8	Not wholly	17	51	74	102	114	144	152	174	227	305	396	445	482
	Died subsequently—9														
Occupied before but not after	138	Wholly breast-fed	122	107	97	90	83	77	67	55	41	26	12	3	3
	Died 13														
	125	Dead ..	..	6	11	14	15	20	20	22	24	25	26	28	28
	Lived—2	Not wholly	3	12	17	21	27	28	38	48	60	74	87	94	94
	Died subsequently—1														
Occupied after but not before	68	Wholly breast-fed	68	65	58	49	41	36	30	24	16	9	5	1	1
		Dead ..	..	..	..	..	2	2	3	3	5	5	6	6	6
		Not wholly	..	3	10	19	25	30	35	41	47	54	57	61	61
Occupied before and after	202	Wholly breast-fed	190	178	146	117	96	83	71	62	51	35	22	14	4
	Died 3														
	199	Dead ..	..	..	..	..	5	12	15	16	20	25	29	29	29
		Not wholly	9	21	53	82	98	104	113	121	128	139	148	156	166
	Lived—6														
	Died subsequently—3														

This table shows the much more rapid increase of those not wholly breast-fed amongst those employed both before and after as compared with those employed neither before nor after the birth in the earlier months. It is at this period that the cessation of breast-feeding acts most injuriously, as is generally known, but may be directly proved.

We may now construct tables showing the mortality occurring in the four weekly periods amongst the wholly breast-fed and amongst those not wholly breast-fed, using the figures given in the table of deaths. The population in each four weekly period is taken as half the sum of those entering and leaving the period, wholly or not wholly breast-fed, as the case may be. We get the following :—

TABLE SHOWING THE MORTALITY IN FOUR-WEEKLY PERIODS AMONGST THE INFANTS BREAST-FED WHOLLY. *

	0—4	—8	—12	—16	—20	—24	—28	—32	—36	—40	—44	—48	—52
Non-industrial—													
Cases	560	516	479	451	423	397	375	332	313	173	98	51	..
Deaths	14	13	6	2	3	1	2	1	1	2	1	..	..
Worked before not after—													
Cases	114	102	93	86	80	72	61	48	33	19	7	3	..
Deaths	5	3	1	1	2	..	..	..	1	..	..	..	..
Worked after not before—													
Cases	66	61	53	45	38	33	27	20	12	7	3	1	..
Deaths	..	..	..	1	..	1	..	..	..	..	..	..	..
Worked before and after—													
Cases	184	162	131	106	89	77	66	56	43	28	18	9	..
Deaths	..	..	..	1	1	..	..	1	..	..	..	..	..

* The total deaths 219 are made up of 65 which occurred under breast-feeding, 99 of children not wholly breast-fed, and 55 who died at or near birth.

TABLE OF MORTALITY IN FOUR-WEEKLY PERIODS AMONGST THE INFANTS NOT WHOLLY BREAST-FED.

	0—4	—8	—12	—16	—20	—24	—28	—32	—36	—40	—44	—48	—52
Non-industrial—													
Cases	34	62	88	108	129	148	163	200	266	350	420	463	..
Deaths	1	3	2	5	4	7	4	3	3	4	4	3	6
Worked before not after—													
Cases	7	14	19	24	27	33	43	54	67	80	90	94	..
Deaths	1	2	2	..	3	..	2	2	..	1	2	..	1
Worked after not before—													
Cases	1	6	14	22	27	32	38	44	50	55	59	61	..
Deaths	..	..	..	1	..	..	..	2	..	1	..	..	1
Worked before and after—													
Cases	15	37	67	90	101	108	117	124	133	143	152	161	..
Deaths	..	..	..	4	6	3	1	3	5	4	..	1	2

Both these tables bring out very clearly the absence of mortality amongst the infants of those employed only after the birth, and of those employed both before and after the birth when compared with the other two classes. But one interpretation seems possible. The constitution of those infants which belong to the mothers who go to work after the birth is on the average greatly superior to that of the children whose mothers do not go to work after the birth. The subsequent higher mortality amongst the first class is therefore in spite of this great initial advantage which they possess.

The table of mortalities amongst the children not wholly breast-fed shows clearly the incidence of this greater mortality in the 4th class above that in the 1st after the 12th week, which must, therefore, be due to the mothers going to work.

The comparison of entire breast-feeding with its absence shows a considerable excess of mortality amongst those not wholly breast-fed. But this does not begin to be clearly manifested till after the 12th week, nor does it continue after the 36th. After this the benefit of the previous breast-feeding makes itself felt.

From these tables could be constructed others showing the probability of survival entirely breast-fed to different periods, or not wholly breast-fed.

It is evident, however, that the numbers are far too small for this purpose, or even for more than general conclusions of any sort.

It has been stated that it can easily be shown that it is the early cessation of breast-feeding which is most injurious. This is clearly brought out in the following figures, which show for those children who died at a period of more than two weeks after the cessation of breast-feeding the four-weekly periods in which they respectively ceased to be breast-fed and died.

Period	0	-4	-8	-12	-16	-20	-24	28	-32	-36	-40	-44	-48	-52	
Period when breast feeding given up	14	20	16	19	7	4	4	3	3	7	2	...	...	...	.....
Period when death occurred.....	...	2	5	4	10	13	10	7	10	8	10	6	4	10	1 death transferred to 52

No fewer than 69 out of the 99 deaths occur in children who ceased to be breast-fed before the 12th week of life, although the deaths are widely distributed over the first year.

This analysis appears to show quite distinctly, notwithstanding the deficiency of numbers, and the first impression which the figures are calculated to convey, that the industrial occupation of mothers is decidedly injurious to their infants.

Effect of Poverty.

Using Mr. Rowntree's table given on page 110 of his book entitled "Poverty," which is here reproduced, we may classify the families in which births occurred according as they are above or under the poverty line.

TABLE SHOWING THE MINIMUM NECESSARY EXPENDITURE PER WEEK FOR FAMILIES OF VARIOUS SIZES.

(Extracted from Mr. B. S. Rowntree's book "Poverty, a Study of Town Life.")

Family	Food	Rent	Household Sundries	Total
1 man	3/–	1/6	2/6	7/–
1 woman	3/–	1/6	2/6	7/–
1 man and 1 woman	6/–	2/6	3/2	11/8
1 man, 1 woman, 1 child ..	8/3	2/6	3/9	14/6
,, ,, 2 children ..	10/6	4/–	4/4	18/10
,, ,, 3 ,, ..	12/9	4/–	4/11	21/8
,, ,, 4 ,, ..	15/–	5/6	5/6	26/–
,, ,, 5 ,, ..	17/3	5/6	6/1	28/10
,, ,, 6 ,, ..	19/6	5/6	6/8	31/8
,, ,, 7 ,, ..	21/9	5/6	7/3	34/6
,, ,, 8 ,, ..	24/–	5/6	7/10	37/4

The result is very surprising. No difference is observable, while amongst those not industrially employed the infants suffer less mortality when the family is under than when it is above the poverty line. This may be due to the great attention given to poor mothers in this district both by the Mothers'

Guild, which is doing admirable work, and by the Health Visitors. At all events the figures are as follows :—

BIRTHS IN ANCOATS 1908.

Relation between occupation, work after birth of a child, and the circumstances of the family, adding in the mother's earnings, taking the figures given by Mr. Rowntree to determine between deep poverty and lesser degrees (infant included). Completed cases.

Occupation of Mother	Income below Scale		Income above Scale	
	Total	Died	Total	Died
Domestic Work (at home)	364	74	405	100
Other Occupation (after birth).	118	28	152	14
Total	482	102	557	114*

* In addition there were 10 cases, of whom 7 lived and 3 died, in which the income was not assertained.

The influence of the size of the family on the life of the child is shown in the following table :—

BIRTHS IN ANCOATS, 1908.

Summary of relation of occupation to the size of families, and of these to the life of the infant (summary of complete cases) :—

	Number of Children living including the present infant.													
	1		2		3		4		5		6		7	
	Total	Deaths	Total	Deaths	Total	Deaths	Total	Deaths	Total	Deaths	Total	Deaths	Total	Deaths
Domestic employment after birth	143	32	176	46	147	42	95	22	82	11	59	10	43	10
Other employment after the birth	63	10	52	11	49	6	43	7	23	3	19	2	17	1

	8		9		10		11		12		All Cases	
	Total	Deaths	Total	Deaths	Total	Deaths	Total	Deaths	Total	Deaths	Total	Deaths
Domestic employment after birth	21	2	5	1	6	1	2	...	...	...	779	177
Other employment after the birth	2	1	...	...	1	1	...	...	1	...	270	42

Here, again, the figures are somewhat unexpected. The greatest fatality occurs not where the families are large, but after the advent of the second child. Moreover, we should have expected that those who returned to work would have been chiefly amongst the recently married. This is not the case. The average size of the families where the mother does not return to work is 3·4, including the infant, where she does 3·2.

Were it possible to have another such inquiry it would be improved upon no doubt. But in this summary only the simplest facts have been used, and the one fact which appears to emerge with certainty is the influence of the absence of the mother from her home on the health of the infant. It is probable that the statements in regard to the means of the household are not always correctly given. Even so, however, the result of the inquiry needs elucidation.

STATISTICS ON INFANT MORTALITY.

In order to have a basis of comparison for future years, I have had the infantile mortality from a number of specified causes calculated out for the ten years 1899 to 1908 for the whole City, for each of its main divisions, and for each sanitary district of the City. (See Table on next page.)

Infant mortality reflects the general social condition, and is highest in the poorest districts.

Of individual districts, those showing the highest infantile mortalities are Central, St. George's, and Ancoats. After these come Bradford and Clayton, followed by Hulme. Then come a number of districts—Openshaw, West Gorton, Chorlton-on-Medlock, Ardwick, Beswick, and Newton.

Considerable changes are occurring in some of these, and after two or three more years the statistics will be worth studying. One year is insufficient.

Diarrhœa is the single cause of death which causes the highest mortality. Then come Atrophy, and Wasting, and Prematurity, followed by Bronchitis and Pneumonia, causes which together exact as high a death-rate as Diarrhœa.

Diseases of the Digestive System come next, with which may be associated Convulsions, although this is the name of a symptom which, although frequently associated with digestive troubles, is also frequently connected with diseases of an infectious character.

Having regard to the death-rates from Diarrhœa, from Atrophy, from Diseases of the Digestive System, from Tabes Mesenterica, and from Convulsions, the dictum of Dr. Railton that Diseases of the Digestive System are responsible for something like half the infantile mortality is probably not far from the mark.

Deaths under 1 Year per 1,000 Births from various Causes in Districts for the Years 1899 to 1908.

	All Causes	Smallpox	Measles	Scarlet Fever	Whooping Cough	Diph. & M. Croup	Diarrhœal Dis.	Digestive Dis.	Premature Birth	Malform. (other)	Erysipelas	Hydrocephalus	Tubes Mes.	Phthisis & Tuberc.	Convulsions	Other Nervous	Bronchitis	Pneumonia	Other Resp. Dis.	Atrophy	Violence	Total Births
Ancoats	204.07	..	5.96	.38	6.34	.58	41.35	14.67	20.61	5.83	.13	2.05	3.84	2.05	8.51	3.20	17.48	15.62	.77	37.70	7.17	15,622
Central	216.55	.13	6.29	.13	6.29	.90	45.67	12.06	23.99	6.29	.64	2.44	4.87	3.59	7.83	3.59	15.91	20.41	.90	31.82	9.24	7,795
St. George's	204.62	.05	4.80	.05	4.91	.46	39.91	10.78	22.28	4.09	.56	2.96	1.53	2.56	8.02	2.91	19.47	20.70	.82	38.28	8.28	19,568
Cheetham	104.03	..	2.41	..	4.73	.66	15.86	6.23	12.37	3.74	.33	1.00	.42	.75	7.72	2.74	9.38	12.87	.66	12.54	1.83	12,045
Crumpsall	126.23	..	1.97	.49	8.88	..	17.26	7.40	16.76	5.92	.99	2.47	.49	1.97	10.36	3.45	12.82	5.92	.49	15.29	1.97	2,028
Blackley	125.89	..	3.55	..	4.34	.79	10.26	10.26	17.76	3.95	..	1.18	.79	1 18	9.08	3.95	11.84	8.68	3.95	20.92	2.37	2,534
Harpurhey	157.63	..	5.50	.19	7.78	.57	23.14	7.40	22.00	3.03	.38	2.85	2.28	1.71	7.02	2.85	13.84	16.69	.95	29.97	3.79	5,272
Moston	130.26	..	4.21	.25	5.20	.25	11.15	11.64	23.03	5.20	.25	1.73	1.49	1.98	9.66	3.71	11.89	11.39	.50	19.31	1.24	4,038
Newton	166.94	..	4.25	.35	6.99	.53	28.93	12.39	17.87	4.42	.27	1.15	.97	1.06	10.35	5.31	12.21	13.27	.71	34.86	3.63	11,304
Bradford	187.43	..	5.18	.23	5.18	.56	41.24	10.82	21.41	5.64	.23	.68	3.04	1.58	4.51	2.71	22.32	17.36	.90	29.42	4.73	8,873
Beswick	168.91	..	4.11	.23	4.57	1.14	32.64	9.82	22.14	6.62	.46	1.83	1.60	.92	4.79	4.34	16.44	15.75	.91	31.50	2.97	4,381
Clayton	186.74	.31	3.77	.63	6.29	.31	32.38	10.37	26.41	7.54	.31	.94	2.20	1.89	4.09	2.20	22.63	13.52	1.57	33.95	3.46	3,181
Ardwick	173.77	..	4.45	.36	6.86	.15	31.82	8.39	20.44	6.35	.15	2.99	5.04	1.82	6.50	2.99	14.81	17.30	.58	30.00	4.16	13,702
Openshaw	181.12	.11	4.73	.21	6.83	.53	31.85	10.93	25.02	6.62	.42	2.63	3.68	3.68	10.62	2.00	18.82	12.72	.42	27.33	2.73	9,512
West Gorton	179.16	..	3.85	.21	6.42	.21	42.57	9.52	23.64	5.78	.43	2.67	4.60	1.82	8.13	1.82	13.91	13.04	.43	24.07	4.17	9,349
Rusholme	117.90	..	4.23	..	5.18	.14	14.86	6.41	19.08	5.04	.14	2.04	2.04	3.68	7.91	2.45	8.45	9.40	1.91	11.86	3.68	7,337
Chorlton-on-Medlock	178.47	..	5.40	.22	5.40	.52	25.35	12.12	26.31	6.50	.44	3.47	2.73	2.66	10.49	3.69	11.31	14.85	.44	25.94	6.58	13,532
Hulme	184.60	..	5.16	.18	6.16	.50	28.12	13.09	21.56	5.66	.23	2.40	2.58	4.76	8.60	2.99	15.67	16.85	.82	31.84	6.88	22,082
*Moss Side	102.79	..	1.25	..	4.16	..	9.16	12.48	20.39	5.83	..	2.08	1.25	3.33	7.91	8.32	4.99	12.48	1.25	10.40	.42	2,403
*Withington	98.54	..	2.68	..	3.87	..	10.42	8.04	13.99	5.36	..	2.38	.30	1.79	11.02	2.08	3.57	10.42	.89	12.80	.89	3,359
City	172.33	.02	4.61	.20	5.88	.47	30.40	10.75	21.15	5.41	.32	2.25	2.62	2.46	8.25	3.06	14.87	15.37	.83	28.46	5.08	177,917
Moss Side & Withington excluded	174.74	.02	4.69	.21	5.94	.49	31.08	10.78	21.29	5.41	.33	2.25	2.68	2.46	8.20	3.11	15.22	15.50	.81	29.01	5.23	172,155

Other formidable causes of death are Measles and Whooping Cough, the Tuberculous group, and "violence."

Certain causes of death seem to rise and fall with the social status of the persons living in the district.

This applies especially to Measles, Diarrhœa, Tubercular Diseases, Atrophy, and Violence.

The fatality from the more familiar causes of death at different periods of the first year of life is shown in the following table, which is formed by adding for five years the figures in the return made to the Local Government Board. (See Table on page 88).

From *premature birth* the fatality descends rapidly from birth down to the fourth month of life, and somewhat more rapidly from congenital defects.

From *Convulsions,* and also from *Wasting,* the fatality is highest in the early weeks of life, and descends more slowly up to the end of the first year.

Unenumerated causes follow the same course.

From Suffocation the fatality is highest at birth, and declines to the seventh month.

Syphilis is most fatal in the first and second months, the fatality declining up to the sixth month.

Bronchitis and *Pneumonia* are formidable from the first, but attain their maximum—Bronchitis in the second, Pneumonia in the eighth month.

The behaviour of the infectious diseases is well shown.

Measles continues to increase in fatality up to and beyond the end of the first year.

Whooping Cough increases slowly in fatality after the second month, reaching its highest point in the last three months of the twelve.

Diarrhœa increases in fatality up to the fourth month, when it is most fatal, and then declines. Its sudden ascent after the first month, and its course generally probably coincide with the additions to artificial feeding.

Enteritis and Gastric Catarrh together pursue a similar course.

There is very little fatality ascribed to *Tuberculosis* in the first three months of life. It then rapidly increases, attaining its highest point in the sixth month, though it pursues no regular course.

Tuberculous Meningitis, however, does not reach its highest point till the eighth month, and *other Meningitis* also not until the eighth.

City of Manchester.—Infantile Mortality during the Years, 1905–1909.

Deaths from stated Causes in Weeks and Months under One Year of Age.

Cause of Death	Under 1 Week	1–2 Weeks	2–3 Weeks	3–4 Weeks	Total under 1 Month	1–2 Months	2–3 Months	3–4 Months	4–5 Months	5–6 Months	6–7 Months	7–8 Months	8–9 Months	9–10 Months	10–11 Months	11–12 Months	Total Deaths under 1 Year
All Causes—																	
Certified	2216	666	631	476	3989	1449	1205	1061	918	809	720	719	728	640	664	632	13534
Uncertified	180	11	22	20	233	69	53	44	26	17	16	15	10	19	7	13	522
(1) Common Infectious Diseases—																	
Smallpox	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chicken-pox	..	..	..	1	1	..	..	..	1	..	3	..	1	2	..	..	8
Measles	..	..	1	2	3	6	2	2	11	11	22	31	51	67	87	89	382
Scarlet Fever	..	..	..	..	..	..	..	..	1	..	1	3	3	4	4	1	17
Diphtheria (including Membranous Croup)	..	..	1	..	1	..	..	..	2	1	2	1	7	7	15	13	49
Whooping Cough	..	1	5	7	13	32	33	28	32	35	33	37	39	46	44	44	416
(2) Diarrhœal Diseases—																	
Diarrhœa, all forms	..	14	28	39	81	211	263	284	236	212	193	147	171	123	138	115	2174
Enteritis, Muco-enteritis, Gastro-enteritis	3	14	19	16	52	65	70	78	58	39	27	33	24	10	20	22	498
Gastritis, Gastro-intestinal Catarrh	..	8	6	4	18	10	8	9	6	9	5	4	3	4	2	3	81
(3) Wasting Diseases—																	
Premature Birth	1340	204	158	82	1784	142	43	9	5	9	2	..	1	..	..	..	1995
Congenital Defects	250	75	44	23	392	58	26	17	9	10	6	5	5	3	4	3	536
Injury at Birth	31	7	..	..	38	..	..	..	..	..	..	..	..	..	..	..	38
Want of Breast-milk, Starvation	..	..	8	2	10	10	7	6	2	..	1	..	..	..	..	..	36
Atrophy, Debility, Marasmus	364	163	179	133	839	384	306	206	138	118	80	48	48	49	23	23	2262
(4) Tuberculous Diseases—																	
Tuberculous Meningitis	1	1	..	1	3	4	5	14	17	23	23	28	25	20	29	20	211
Tuberculous Peritonitis: Tabes Mesenterica	..	1	..	3	4	12	13	24	12	28	7	18	10	10	6	16	160
Other Tuberculous Diseases	..	..	2	4	6	24	16	17	14	15	12	17	12	11	16	11	171
(5) Other Causes—																	
Erysipelas	..	4	..	4	8	6	1	2	1	2	2	..	..	..	..	..	22
Syphilis	13	10	8	14	45	42	34	18	15	3	4	3	3	2	..	1	170
Rickets	..	..	1	1	2	2	..	3	9	4	8	2	13	5	8	10	66
Meningitis (not Tuberculous)	..	..	3	..	3	15	10	13	19	12	17	25	22	16	14	19	185
Convulsions	121	67	38	29	255	68	53	41	46	35	24	31	20	22	22	6	623
Bronchitis	9	28	45	32	114	143	116	107	103	83	63	85	86	58	73	61	1092
Laryngitis	1	..	..	..	1	..	2	3	..	2	..	..	1	4	1	3	17
Pneumonia	4	11	20	25	60	90	93	116	109	100	132	148	140	140	113	140	1381
Suffocation, overlying	77	8	22	21	128	88	68	39	34	18	3	4	1	4	3	1	391
Other causes	171	59	63	49	342	102	80	69	61	52	58	55	44	46	46	40	995
	2396	677	653	496	4222	1518	1258	1105	944	826	736	734	738	659	671	645	14056

TUBERCULAR PHTHISIS.

The chief event of the year 1909 has been the increase of cases notified under the Public Health Tuberculosis Regulations of the Local Government Order of December 18, 1908.

Incidentally we have thus been made aware of the considerable lacunæ left under a system of voluntary notification.

If such lacunæ exist in respect of Poor Law cases, it may be assumed *a priori* that the omissions are larger in regard of other institutions.

In this respect the Order has been of very great value.

It has shown that to get complete information, and to have a reasonable completeness of information is necessary for success in our work, compulsory notification is required, such as exists in Sheffield.

In other ways, also, it has proved useful. A letter was addressed to the Medical Officers of the Union Hospitals on November 19th, 1909, suggesting that systematic instructions should be given to patients in the personal precautions to be adopted, and effectual steps have been taken at the Crumpsall and Withington Hospitals for giving instruction to patients.

Such action cannot fail to have an influence on the habits of men in common lodging-houses.

The increased work thrown on our Tuberculosis Office through the increase in notifications acutely raises the question of increased staff and accommodation.

On March 7th, 1910, a deputation of the Chorlton Board of Guardians waited on the Sanitary Committee with a view to impress upon them the urgency of further action in regard to Phthisis in Manchester. They suggested that the Sanitary Committee should provide a sanatorium for 200 patients, and held out the hope that they would be able to come effectually to the assistance of families impoverished by Phthisis. The Sanitary Committee instructed their Medical Officer of Health to report on the proposals put forward, and the following special report has accordingly been presented.

This report deals, however, only with these proposals, and it is proposed to continue the ordinary Annual Report, which treats also of other aspects of this vast question.

SPECIAL REPORT.

The Provision to be made of Hospital Accommodation for Cases of Tuberculous Lung, and the Prevention of Tuberculosis.

When in 1899 the voluntary notification of Phthisis was adopted in Manchester, it was recognised that the provision of hospital accommodation was inadequate, especially for those persons who are above the poverty line, but it was considered that more good could be effected by investigating the conditions under which the disease extends, by giving instructions in the precautions to be adopted, and by securing cleanliness on the part of householders, than could be attained at all events at that time by the erection of sanatoria.

It has been found, however, as matter of experience, that the operations carried out under the scheme of voluntary notification have been greatly assisted by our having accommodation to offer at the Crossley Sanatorium and at Clayton Vale.

That the work carried out under the scheme of voluntary notification has been productive of much good appears in various ways. Since the introduction of the scheme there has been a decided fall in the death-rate from Phthisis, and more especially in that part of the community on which such instruction might be supposed to produce an effect. Further study of the history of individual families appears to show that the incidence of Phthisis has been lessened on those which have had the advantage of instruction and control.

For the last few years, however, the influence of poverty in the production of Tuberculosis, and of Phthisis in the production of poverty, have been more and more in evidence. When the head of a household is attacked by Phthisis, the effect on the family resources is immediate and marked. Now, there is no disease which is more powerfully influenced by malnutrition, whether in its inception or in its progress, with the result that along with poverty comes infection of other members of the family. We do not, perhaps, need much incitement to do whatever is most effectual to diminish the amount of Phthisis existing in Manchester. Nevertheless, I append a calculation by Mr. Lock, showing that the loss of wages due to cessation of work of notified cases in 1909 is not less than £48,000 a year, and is probably considerably more.

It would, therefore, be well worth the while to spend a large sum of money if we had a reasonable prospect of effecting a great reduction in this huge loss.

The number of deaths ascribed to Phthisis exceeds, for the whole City of Manchester, 1,000 per annum. If we assume that the patients are infective for three years on an average before death, there are 3,000 infective cases to be dealt with. Besides these, there are a considerable number of other infective

cases suffering from Open Tuberculous Disease in the bowels, kidneys, bones, and glands. These may possibly number 1,000 more, mostly children. The total number of persons affected by Tuberculosis in other forms than Tubercular Phthisis may be guessed at 4,000, but we have no exact estimate.

Of the 3,000 cases of Phthisis in an infective stage, many will also be suffering from Tuberculous bowels and kidneys, and the replacement of pail-closets and middens by water-closets will therefore be the means of removing a large amount of infection which we may believe to be, at least to some extent, operative.

Tuberculous Disease in children has diminished since 1899 much more than has Phthisis, a fact which may be partly due to work done under the Milk Clauses. Most of the infection of children, however, in all probability, is due to contact with cases of Phthisis, and the improvement may be in part assigned to the work done among families under voluntary notification. There does not appear to have been any reduction in the Phthisis death-rate as it affects the class frequenting common lodging-houses, and the improvement which has occurred must, therefore, be in the members of families.

There is, however, no reduction in the Phthisis death-rate in male children at ages 0–15, and both in males and females the chief reduction has occurred amongst persons living between the ages of 15 and 65.

We have at least three methods by which we may attempt directly to combat the heavy mortality from Tuberculosis:

(1) We may isolate cases in hospital.

The advantages of this course are that we remove from the household a heavy source of expense, and do away with the risk of infection during the period of isolation. The beds at present available for treatment are:

At Crumpsall Union Hospital	203
„ Chorlton Union Hospital	129
„ Prestwich Union Hospital	50
„ the Crossley and Bowdon Sanatoria	150
„ Clayton Vale	43
„ the Crossley Home of Peace	10
Total	585

In addition we are able, at least in the Crossley and Bowdon Sanatoria, and in the Clayton Vale Hospital, to instruct the patients in personal precautions, though this instruction can be given at home, and probably is so given as effectually as in the hospitals.

How far infection is thus limited it is not easy to measure. In the Union Hospitals many patients die, and, between their last reception and death, there must be a considerable limitation of infection. On the other hand, in the earlier stages of their disease they go in when they are compelled by circumstances, and come out as soon as they feel a little better. Moreover, they are liable to overflow on to the able-bodied side. Perhaps a still greater evil consists in this, that many persons in urgent need of treatment will not go into the Union Hospitals.

As far as the prevention of infection is concerned, matters are a little better at the Sanatoria. A certain number are cured ; the majority, however, are not, and are soon infective again after discharge. There is the advantage, however, that they have been taught how to use preventive precautions.

At Clayton Vale, where the patients are more advanced, they have been kept for prolonged periods, and taught the personal precautions to be adopted. But, as a result, the field of operations has been greatly restricted by the small numbers treated.

Hospital treatment, then, is limited in its results, and it is a question whether careful personal instruction should not be regarded as a primary object.

If a serious attempt to isolate all the cases of Phthisis requiring treatment in hospital is contemplated, the task is a formidable one. Nevertheless, there is a considerable section of the industrial classes to whom it would be a great gain to have access to hospital treatment, and who cannot be expected to enter any institution as paupers. Some of these could pay a certain amount, an amount which could be calculated when the resources of the household are known. Others, again, not merely cannot pay, but cannot be induced to go into hospital, because their absence from work reduces their families to poverty. For both classes suitable provision needs to be made.

It is at present impossible to say what are the requirements for this class of case, but it is certainly not less than 200 beds. Judging from the experience of the Crossley Sanatorium the annual cost of such a hospital would not be less than £15,000, including interest and sinking fund.

(2) The second line of work consists in the notification of cases of Phthisis, in visiting and instructing the patients and their families in the carrying out of proper precautions, and in getting for the families such assistance as is practicable from existing charities.

In addition, an effort is made to secure some measure of precaution in workshops, common lodging-houses, and public-houses, while in public vehicles a bye-law is in force which to some extent removes sources of infection.

It seems to me that the work done under the scheme of voluntary notification has been the most potent means of reducing Phthisis in recent years. The work is carried out at an annual face cost of about £2,400, although, owing to services rendered, it is really greater than this amount.

It must be admitted, however, that we have difficulty in getting through the work, and that the visiting staff urgently requires strengthening.

(3) The third line of work, as was stated by the Chorlton Board of Guardians when they addressed you, consists in the giving of adequate assistance to the families of consumptives. Their proposal was that the Sanitary Committee should build, equip, and maintain a hospital for 200 beds, while they would endeavour to provide adequate assistance to the families. This proposal can have reference only to South Manchester, as they have no power to give assistance in other Unions. Is it, then, for South Manchester alone that you are invited to provide the accommodation of 200 beds ? It is, however, very important that they should have recognised so fully the necessity of making adequate provision in aid of the families of cases of Phthisis.

There are two further difficulties in the way of their proposal. One is that no supervision appears to be contemplated of the manner in which adequate assistance is utilised in the supply of food, the supply of clothes, and the fulfilment of sanitary requirements, and some scheme is needed whereby the amount of assistance needed is calculated, supplied, and properly applied.

If it is proposed that the assistance shall be given through the Relieving Officer, the stigma of pauperisation will apply to and will frustrate the scheme, at least in part.

Yet so notable a recognition of the requirements of the position should not be rejected without an attempt to arrive at a solution of the difficulties, and it is suggested that a further interview be sought.

It would be perhaps an easier solution if the three Unions should amalgamate, and if the Prestwich Union Hospital buildings at Booth Hall were handed over to the Corporation to deal with Phthisis.

What is perhaps not sufficiently realised is the magnitude of the work which lies before us. We may, perhaps, obtain some idea of it by considering the actual number of patients treated in the various institutions, and the difficulties in the way of preventive treatment now existing.

As regards sanatorium treatment, or curative treatment in other institutions it is generally agreed that, unless the cases can be diagnosed while yet in the early stage, there is not much prospect of cure. But in the way of such early recognition and institutional treatment there lie several obstacles.

The first of these is the existing acceptance by working men of a certain measure of illness as one of the features of their lives which must be submitted to, and may be discounted. So enormous a difference will the practical recognition of the existence of a serious disease make to their families and to their own comfort that they abstain from enquiring into the cause of their failing energy. No doubt, if they could be secure that their families would be adequately provided for while they were undergoing treatment, a considerable section of them would take much more trouble to ascertain the character of their illness, and to seek institutional assistance. But the relief, even then, would only be partial, so long as workers are liable to be left aside after their cure is completed.

A second source of failure is the inadequacy of early diagnosis. It requires a considerable degree of sagacity to detect the first faint signs of Phthisis, and it is often quite impossible to diagnose the disease before it has thoroughly established itself. It appears necessary to have recourse to more penetrating methods of diagnosis, such as injections of Tuberculin, to determine the presence of early Phthisis. Doubtless this means is adopted in individual instances, but not generally.

Nevertheless, the system of sickness insurance which exists in Germany appears to have greatly reduced the amount of Phthisis prevailing in that country. It is not to be forgotten, however, that the reduction has also been great in this country without any such system. There can be little doubt that in this country the reduction must be in large measure ascribed to amelioration of the general lot of the people, an amelioration which has taken place in Germany with a rapidity corresponding to the rapidity with which Phthisis has declined.

If this be a just view, it seems reasonable to think that if the conditions of life of those more immediately in contact with phthisical persons could be improved in a manner consonant with the general well-being, more could be effected than by any other means.

It does not seem to matter much for the immediate object whether the improvement is due to a good system of sickness insurance, or whether it is due to the deliberate application of public money to the prevention of an infectious disease.

It is to be remembered, further, that, when all that can be done is done for early cases, there will always be a considerable proportion who will not recover under treatment, and who must be discharged to make room for others. Presently their sickness insurance, if such exists as in Germany, expires, and we are in such cases face to face with the old difficulties.

In such cases the question of a judicious application of public funds to ameliorate the lot of the unfortunate patient, and to avert infection from members of his household, by sustaining nutrition, still arises.

If, as will always happen in many instances, especially among the very poor, the disease has advanced beyond the curable stage, and the patient has been removed to a Poor Law institution, we have fresh barriers to efficiency in prevention. There is at present no power to compel detention in Union Hospitals, and, if there were, the probable effect would be to cause many persons who now enter these institutions to remain in misery at home, infecting their families and other persons. Yet, even under existing conditions, a number of persons remain for years in the Union Hospitals. That is very expensive. But it is probably the cheapest way to deal with the disease.

Now, under favourable hospital treatment, the disease may last for many years, and we thus see that to deal effectually with the great array of poor consumptives in more advanced stages in this manner it would be necessary to obtain powers of compulsory detention, and to make a provision greatly in excess of any now contemplated.

There are, however, a number of persons who are conscious of the injury inflicted on their families by their continued presence in the household, and who would be induced to submit to institutional detention. How large the number is one could not definitely say, but it is certain that their removal from the community would aid in the reduction of Phthisis, and would be a suitable application of public funds. The extent of the prevention would depend on the number of infective foci left behind in the community, and also on the susceptibility, for one or another reason, of those exposed to this remanent infection. The utmost that one can expect from such hospital provision alone is some reduction of the evil.

We have now to ask in what manner the administrative action under a scheme of voluntary notification is limited. It is, first of all, limited by the inadequacy of the staff engaged in attending to the notified cases. Our special staff has not been able to do more than pay one visit to cases of Phthisis. It often happens that other members of the family suffer from Tuberculosis other than Pulmonary. It is quite impossible to follow up these cases and see that proper precautions are taken in respect of them, and in fact, unless they occur, and often they do not, in association with a case of Phthisis, we do not know of their existence. There are no hospitals for such cases, or, at all events, the great bulk of them are not treated in hospital, until they develop Pulmonary Tuberculosis, when perhaps they find their way into the Union Hospitals. It is very desirable that such cases should be kept under observation, and that householders should be instructed in the modes in which they may be expected

to infect other members of the family, and in the means by which infection may be averted. But it is above all necessary that consumptives and the families of consumptives should not be allowed to sink into destitution. Under such circumstances the progress of the disease is rapid, and in the carelessness and crowding which ensue are found ample reasons for the propagation of Tuberculosis.

It may be said that destitution from Phthisis is not different from destitution arising from any other disease, and should be dealt with on the same lines. But it is different. Phthisis is a disease of long duration ; and is unlike Typhoid Fever or Pneumonia in this, that, supposing these produce temporary destitution, credit may be obtained, and the debt incurred may be gradually paid off. But the destitution arising from Phthisis is lasting, and debts incurred cannot be paid off. The whole family sinks into a lower condition of living, a condition under which the disease is continued.

What, then, are the additional measures which we may hope would reduce the excessive incidence of Phthisis on this community still further ?

The procedures from which we may look for further progress may be divided into those which are expensive, and those which will cost comparatively little.

(1) It is desirable that every means should be used to give the public elementary instruction in the precautions which need to be taken. Leaflets of instruction were on two former occasions distributed by the Police to every house in the City, and this procedure might, perhaps, be repeated.

There is also no reason why these leaflets of instruction should not be distributed by the District Registrars at the same time as they distribute leaflets to mothers, and when deaths are registered, if these gentlemen would undertake this trouble.

Formal systematic instruction in the personal precautions requiring to be adopted should also be given to patients suffering from Phthisis in all the Union Hospitals, as it now is in Withington and Crumpsall.

It would be a good thing if the Sanitary Committee would arrange for public lectures by medical men to be given, a fee of £2 2s. being given for each lecture.

Public institutions might be approached, as, for example, the Children's Hospital, with a view to having instructions given in the precautions to be adopted in regard to Tuberculous children, and also in regard to ailing children exposed to risk of infection. But this observation applies also to all other institutions, according to the class of case which each receives, and especially to the Royal Infirmary, the Ancoats Hospital, and the Northern Hospital.

Medical men might be circularised on the subject of giving instruction to their patients.

(2) Additional staff is required to deal with cases of Tuberculosis. Owing to the Order of the Local Government Board, which came into force in the beginning of 1909, requiring all cases of Phthisis coming under the Poor Law to be notified forthwith to the Medical Officer of Health, a great increase has occurred in the number of notifications, and in the work involved in visiting patients. At no time, however, has it been possible adequately to follow up the history of families and to ascertain the first beginnings of Phthisis, or the development of other forms of the disease. This ought, if possible, to be done more completely, with a special view to the early detection of cases. The population of the City has considerably increased, and the area from which cases come under attention has been extended.

As a result of the increased work thrown on the staff, it is not possible to give that special attention to Enteric Fever and Diarrhœa which in former years we have been able to do. Another Medical Officer appointed to deal exclusively with Tuberculosis would have his time fully occupied, and two additional Sanitary Inspectors are desirable.

(3) It is well known that the present hospital and sanatorium provision is inadequate. The Union Hospitals have at some periods of the year more patients than Phthisis beds to receive them. The patients selected for treatment at the Crossley and Bowdon Sanatoria are so much more numerous than the beds for their reception that patients have often to wait for considerable periods before they can be admitted, losing ground the while. There are many patients requiring treatment who will not enter the Union Hospitals, preferring to suffer rather than to become paupers.

In not a few of these cases it would greatly mitigate the poverty of families, and in a certain number it would remove impoverishment, if they could be received into a sanatorium. Most of the cases notified voluntarily are of the poorer class, and in considering what hospital provision is needed we may confine our attention to these. Mr. Lock has gone over, for 1909, 800 notified cases, and finds 115 cases suitable for treatment who have not received it. A certain number of these would not be induced to leave their homes.

Now these notified cases are for the most part beyond the incipient stage of the disease. Three months' treatment would not suffice for them. At least six months is needed, and on the average not less than twelve. If the object is to remove infection, many would require more than a year, and as a matter of fact Dr. Newsholme in his book shows that the London Poor Law Union Hospitals treat some of their cases for years. It is a feature of even advanced

cases of Phthisis that many of them greatly improve under institutional treatment, and have the term of their illness considerably extended. Not a few are able to return to work. These considerations render it difficult to say what additional accommodation is needed. It is clear, however, that the accommodation now provided for the classes treated in Poor Law Hospitals, and for those able to pay smaller sums, is quite inadequate.

If we give a year's treatment to each case, it follows from Mr. Lock's figures that some 200 additional beds are needed. If the average period of treatment exceeds a year, the number of beds needed is correspondingly increased. It is not probable, however, that the average period of treatment would exceed a year and a half, and the number of beds required would, on this basis, be 300.

Those requiring the accommodation are under various social conditions. A certain proportion could and should pay, according to the means of the family. The greater number would not be able to pay at all.

Undoubtedly, a hospital of 200 beds would do much to relieve the suffering and danger now existing.

It would be an entire misconception to think that, under existing circumstances, the direct results of sanatorium or hospital treatment on the prevention of infection far transcend those resulting from treatment of fevers in hospital, and that we may therefore economise by discarding the treatment of fevers and substituting that of Phthisis. There is, just as with Fever Hospitals, the occlusion of a certain amount of infection. Far more cases leave Consumption Hospitals in an infectious condition. Even in sanatoria it may be accepted that over 50 per cent. on the average leave the sanatorium not entirely cured.

Nevertheless, when these are thoroughly and systematically instructed in the quarters from which danger of infection may be anticipated, and in the precautions to be taken, they may be themselves harmless after discharge, and may greatly aid in preventing infection after discharge. The most difficult question in regard to such cases is, what is to become of them ? If they continue to be discharged into private houses, depressing the household below the poverty line, we may be sure that the effects of teaching will wear off, and that the old carelessness of personal habit will return. Still more does this apply to the tramp class, and to those living in common lodging-houses. It is all the more essential that their instruction should be thorough, but it is also necessary

to take further safeguards. One such may be regarded as absolutely necessary, namely, the power to detain consumptive poor persons under treatment until the Medical Attendant with the Medical Officer of Health consider that they can safely be discharged.

It is desirable that we should bear in mind one aspect of sanatorium treatment which is of no small moment. We may, perhaps, assume that for each man sent into a sanatorium at a comparatively early period, an average of two years' additional work is secured by his treatment.

There are 100 beds in the Crossley Sanatorium, of which we may assume that 60 are occupied by men. If we may assume that 30 men are in a comparatively early stage, 120 such will be treated during the year, giving three months to each. Taking the average wage earned by these as £1 2s. 6d., the additional annual wages secured by the treatment will be £14,040. Of course, if all the cases were wage earners, and they were all sent in at a curable stage, the saving in wages would be much greater than this sum.

Compulsory Notification of Phthisis is required, because we do not now possess full knowledge of the ramifications of the disease, and are consequently at a loss in tracing a number of cases, and in taking full measures of prevention. There is no reason to suppose that adequate measures of precaution are taken in regard to all the cases not at present notified.

In addition, however, to the provision for Phthisical cases, accommodation is required for children suffering from Tuberculosis, and it would be an excellent thing if a combined hospital and school could be established. In so desirable an object we may assume that the Educational Authority will lead the way.

There is also needed in the future a school for ailing children without definite signs or symptoms—the pretuberculous class. Such children, whether tuberculous or chronically ailing, need to have their requirements as regards health primarily considered, and their work fitted to their capacity.

It is, however, in regard to the curable or partially curable cases of Phthisis that the real difficulty lies. So long as no provision is made for the household during the absence of the breadwinner, so long will cases fail to be early reported, or to enter any institution while yet curable. How far public assistance should be given in such cases will depend on the circumstances of each case.

In all cases the general safety is concerned. Hence a system of compulsory insurance, such as that adopted in Germany, meets the requirements of this disease. Until, however, such a system is established, it would be necessary, if we wish to induce persons to enter sanatoria early, and if we wish the systems of those exposed to household infection to be fortified against it, to set apart a sum for the assistance under suitable safeguards of households invaded by Tuberculosis. In any case, such assistance is often needed in those instances in which sanatorium treatment fails to cure.

I have calculated that £5,000 would go far to meet this need, but this special assistance should not be granted, whether by the Guardians or by the Sanitary Authority, unless measures were taken to ascertain that the public assistance was expended on securing good food, good clothing, and sanitary conditions.

The obtaining of this assistance is an urgent question, because, while its absence is a serious check to the usefulness of sanatorium treatment, much good could be derived from it in the absence of sanatorium treatment.

The annual expenditure involved might be thus roughly set forth :—

	£
(1) Additional Instruction..	200
(2) Additions to the Public Health Staff	500
(3) Additional under Compulsory Notification—	
Under Notification Fees..	100
Examination of Sputum..	100
(4) Public Assistance to Families	5,000
(5) Annual Cost of a Hospital for 200 beds	15,000

James Niven,
Medical Officer of Health.

June 16th, 1910.

APPENDIX.

Unemployment, due to Phthisis, at the time of Notification in 1909.

Summary.

The estimate of wages is based on the following ascertained facts :—

	£ s. d.
Ascertained wages (when working) of 145 men, giving an average of £1 0s. 8d. per man	149 15 0
Ascertained wages (when working) of 87 women, giving an average of 9s. 3d. per woman	40 3 6

The following figures show the weekly wages, when working, of the understated persons disabled by Phthisis from work, and coming under the Notification Scheme, in the year 1909 :—

		£ s. d.		£ s. d.
443 men (with dependents) ..	..at	1 0 8	=	457 15 4
335 men (without dependents) ..	.. „	1 0 8	=	346 3 4
778				£803 18 8

		£ s. d.		£ s. d.
179 women (with dependents) ..	..at	0 9 3	=	82 15 9
84 women (without dependents) ..	.. „	0 9 3	=	38 17 0
263				£121 12 9

Total loss in wages per week :—	£ s. d.
1,041 men and women	925 11 5
Per annum..	48,129 13 8

To this must be added loss by unnotified patients who are not working and loss by patients who were notified in previous years, and who are now out of work.

Similar Facts for 1908.

		£ s. d.		£ s. d.
Males (with dependents) ..	..408 at	1 0 8	=	421 12 0
Males (without dependents)	..340 „	1 0 8	=	351 6 8
	748			£772 18 8

		£ s. d.		£ s. d.
Females (with dependents)	..165 at	0 9 3	=	76 6 3
Females (without dependents) ..	75 „	0 9 3	=	34 13 9
	240			£111 0 0

Total males and females, 988 = £883 18s. 8d. per week ; £45,964 10s. 8d. per annum.

Phthisis and Poverty, 1909.

Classes of family dealt with :—

I.—(*a*) Those in which the *male* patients are not working, and in which the weekly wages of patients are not stated.

(*b*) Those in which the *female* patients are not working, and in which the weekly wages of patients are not stated.

II.—(*a*) As above for males, the weekly wage *being stated.*
(*b*) As above for females, the weekly wage *being stated.*

Class I.—(a) *Males not Working.*

No. of Families.	Total Requirements.	Income.	Shortage.
133 ..	£155 11 11 ..	£94 9 1 ..	£61 2 10

Average wage per man (calculated from the stated wages of 145 men) is £1 0s. 8d. weekly.

£1 0s. 8d. × 133 = £137 8s. 8d., which, if added to the income, would make £231 17s. 9d., or £76 5s. 10d. above the minimum requirement.

Class I.—(b) *Females not Working.*

No. of Families.	Total Requirements.	Income.	Shortage.
21 ..	£29 7 8 ..	£2 18 0 ..	£26 9 8

Average wage for a female (calculated from the stated wages of 87 women) is 9s. 3d. weekly.

9s. 3d. × 21 = £9 14s. 3d., which, if added to the income, would make £12 12s. 3d., or £15 15s. 5d. short of what is needed to reach the minimum requirement.

Note.—Only 4 of the 21 families have any income at all.

Summary.

No. of Families.	Total Requirements.	Income.	Shortage.
154 ..	£184 19 7 ..	£97 7 1 ..	£87 12 6
Average ..	1 4 0 ..	0 12 8 ..	0 11 5

Class II.—(a) *Males not Working.*

No. of Families	Total Requirements	Income	Patients' Wages when Working	Shortage	Overplus when Patients Working	Shortage when Patients Working
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
69	69 10 10	29 14 11	76 1 6	33 15 11	36 5 7	....
Average ..	1 0 2	0 8 7½	1 2 1	0 11 6	0 10 6	....
17	19 7 7	2 3 0	14 3 2	17 4 7	....	3 1 5
Total–86 ..	88 18 5	31 17 11	90 4 8	57 0 6	33 4 2	....

(b) *Females not Working.*

	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
11	10 8 11	7 5 0	7 8 0	3 3 11	4 4 1	....
5	4 1 11	0 13 0	1 17 0	3 8 11	....	1 11 11
Total–16 ..	14 10 10	7 18 0	9 5 0	6 12 10	2 12 2	....

Males and Females—Total with Overplus when Patients Working.

	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
80	79 19 9	36 19 11	83 9 6	42 19 10	40 9 8	....

Males and Females—Total with Shortage when Patients Working.

	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
22	23 9 6	2 16 0	16 0 2	20 13 6	....	4 13 4

Total Males and Females.

	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
102	103 9 3	39 15 11	99 9 8	63 13 4	35 16 4	....
Average ..	1 0 4	0 7 10	0 19 6	0 12 6	0 7 0	....

Total Classes I. and II.

		Males not Working.				
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
219	244 10 4	126 7 0	227 13 4	118 3 4	109 10 0	....
		Females not Working.				
37	43 18 6	10 16 0	18 19 3	33 2 6	—14 3 3 (minus)	....
Total–256 ..	288 8 10	137 3 0	246 12 7	151 5 10	95 6 9	....
Average ..	1 2 6½	0 10 8½	0 19 3	0 11 10	0 7 5	....
Per annum.	14998 19 4	7131 16 0	12824 14 4	7867 3 4	4957 11 0	....

TABLE SHOWING PARTICULARS OF DISTRESS IN CASES OF PHTHISIS NOTIFIED DURING THE YEAR 1909, CLASSIFIED ACCORDING TO THE REQUIREMENTS OF THE FAMILY IN EXCESS OF THE INCOME. FOOD CALCULATED ON THE ATWATER SCALE. HOUSEHOLD SUNDRIES CALCULATED ON MR. ROWNTREE'S SCALE.

Shortage UP TO ..... IN SHILLINGS.

Conditions affecting Individual Cases	– 5	– 10	– 11	– 12	– 13	– 14	– 15	– 16	– 17	– 18	– 19	– 20	– 25	25+	Total
Alive December 31st, 1909	109	72	11	16	14	10	11	8	12	15	8	9	27	16	338
Dead December 31st, 1909	35	32	4	7	3	7	7	2	2	2	2	..	6	3	112
Removed to Union Hospital.. ..	49	38	4	9	9	9	9	4	8	6	5	4	21	10	185
Removed to Delamere Sanatorium	6	2	1	..	1	..	2	..	..	1	..	..	1	1	15
Removed to Bowdon	6	1	1	..	1	..	1	..	1	2	..	1	1	2	19
Removed to Clayton Hospital ..	1	2	1	..	..	..	..	..	..	1	..	1	1	1	8
Removed to Sunnyside or elsewhere	5	3	1	1	..	..	1	1	..	..	..	..	..	2	14
Remained at home	77	58	7	13	6	8	5	5	5	7	5	3	9	3	211
Relief received..	?	8	?	4	4	7	5	1	4	8	3	3	23	11	81

Annual Statement in reference to Phthisis in 1909.

In the following table are given the death-rates from Phthisis for the whole City, and for each of its main divisions and sanitary districts. (See Table 1, page 106.)

It will be seen that the death-rate is higher in the Manchester Township and in South Manchester than it was in the average of the eight years 1901 to 1908.

In North Manchester, on the contrary, it was decidedly lower.

For the whole City the death-rate for 1909 was somewhat lower than the average. Nevertheless, it was higher than in the years 1905, 1907, and 1908.

Notwithstanding that North Manchester contains an industrial population, the death-rate for every sanitary district which it contains is under 1 per 1,000, being as low as 0·89 per 1000.

The differences between the death-rates in the main divisions, which form also a differentiation of degrees of poverty, are increased. This may be taken to depend on the depression experienced in the years 1908 and 1909 The same difference also applies to the classes on whom the work done under Voluntary Notification is likely to produce the greatest effect.

The excess in death-rates over the average is especially marked in Ancoats, Central, Chorlton-on-Medlock, Hulme, Ardwick, and Openshaw. With the exception of the last, they are all poor districts.

Table I.

Death-rates from Phthisis.

Statistical Divisions	Mean Death-rate 1891-1900	1901	1902	1903	1904	1905	1906	1907	1908	Average 1901-1908	
City of Manchester	2·08	2·09	2·08	1·85	1·98	(1·68) 1·56	(1·81) 1·71	(1·80*, 1·70	(1·74) 1·65	1·83	(1
I. Manchester Township	3·22	3·49	3·54	3·00	3·14	3·00	2·99	3·09	2·79	3·13	3
II. North Manchester	1·26	1·21	1·26	1·05	1·23	0·96	1·03	1·16	1·08	1·12	0
III. South Manchester	1·90	1·93	1·86	1·79	1·90	1·33 (1·53)	1·59 (1·79)	1·47 (1·64)*	1·56 (1·75)	1·68	1 (1
I. Ancoats	2·67	2·82	3·17	2·43	2·26	2·78	2·48	2·82	2·19	2·62	3
I. Central	3·70	4·43	4·34	3·68	4·35	3·58	4·28	3·85	3·16	3·96	3
I. St. George's	3·37	3·52	3·42	3·09	3·23	2·89	2·79	2·95	3·09	3·12	2
II. Cheetham	1·16	0·99	1·05	0·80	1·11	0·87	0·78	1·06	1·07	0·97	0
II. Crumpsall	1·03	1·02	0·45	0·99	0·44	0·43	0·65	1·28	0·63	0·74	0
II. Blackley	1·18	2·14	1·33	0·98	1·61	1·59	0·94	1·15	1·30	1·28	0
II. Harpurhey	1·21	1·01	1·49	1·50	0·69	0·65	1·24	1·31	0·80	1·09	0
II. Moston	0·89	1·07	1·22	0·63	1·17	1·08	0·72	0·78	0·76	0·93	0
II. Newton	1·51	1·46	1·29	1·27	0·80	0·79	1·19	1·47	1·18	1·18	1
II. Bradford	1·35	1·18	1·62	1·23	1·30	1·29	1·40	1·31	1·40	1·34	0
II. Beswick	1·30	1·37	1·27	1·08	1·57	1·31	1·37	0·88	0·86	1·21	0
II. Clayton	1·02	0·72	1·33	0·71	0·94	0·95	0·72	0·81	1·48	0·96	0
III. Ardwick	1·67	1·54	1·62	1·62	1·78	0·98	1·81	1·52	1·28	1·52	1
III. Openshaw	1·25	1·24	1·16	1·33	1·35	1·06	0·80	1·35	1·32	1·20	1
III. West Gorton	1·65	1·43	1·61	1·58	1·53	1·38	1·65	0·94	1·31	1·43	1
III. Rusholme and Kirk.	1·10	1·61	1·82	1·10	1·00	1·00	1·18	1·27	1·49	1·31	0
III. Chorlton-upon-Medlock	2·09	2·38	1·85	1·76	2·47	1·90	2·18	2·02	2·12	2·09	2
III. Hulme	2·39	2·36	2·44	2·50	2·26	2·07	2·19	2·04	2·28	2·27	2
III. Moss Side	..	..	..	..	..	0·75	1·00	0·99	1·14	..	1
III. Withington	..	..	..	..	..	0·50	0·84	0·83	0·80	..	0

* Exclusive of Moss Side and Withington.

Table 2 shows the death-rates from forms of Tuberculosis other than Phthisis. The death-rate here is considerably lower than the average for the years 1901–1908, but it is slightly higher than those for 1905 and 1906. The death-rates follow the same order as those for Phthisis as regards the main divisions of the City, but while a marked decrease is shown in the Manchester Township and South Manchester, there is on the contrary an increase in North Manchester in 1909. The increase is, however, confined to three districts, although in these it is very marked, viz., Blackley, Beswick, and Clayton.

TABLE 2.

Tubercular disease other than Phthisis.

DEATH-RATES FROM TUBERCULAR DISEASES OTHER THAN PHTHISIS.

STATISTICAL DIVISIONS		Mean Death-rate 1871-1900	1901	1902	1903	1904	1905	1906	1907	1908	Average 1901-1908	1909
City of Manchester		**0·90**	**0·78**	**0·71**	**0·76**	**0·69**	**0·56**	0·61	**0·56**	**0·59**	**0·66**	**0·57**
I. Manchester Township		0·99	1·14	0·89	0·95	0·79	0·69	0·87	0·76	0·83	0·87	0·72
II. North Manchester		0·60	0·42	0·47	0·41	0·41	0·42	0·37	0·36	0·36	0·40	0·42
III. South Manchester		1·03	0·82	0·77	0·90	0·82	0·58	0·65	0·62	0·64	0·73	0·61
I.	Ancoats	1·03	1·44	0·98	0·92	0·91	0·82	0·99	0·90	1·03	1·00	1·02
I.	Central	1·03	0·97	0·89	0·70	0·54	0·59	0·95	0·86	0·71	0·78	0·66
I.	St. George's	0·95	1·02	0·84	1·11	0·85	0·65	0·74	0·62	0·72	0·82	0·51
II.	Cheetham	0·41	0·27	0·37	0·26	0·35	0·37	0·22	0·10	0·35	0·29	0·19
II.	Crumpsall	0·60	0·23	0·34	0·33	0·22	0·11	0·22	0·32	0·31	0·26	0·11
II.	Blackley	0·73	0·34	0·00	0·00	0·54	0·64	0·21	0·21	0·30	0·28	0·91
II.	Harpurhey	0·93	0·76	0·53	0·34	0·42	0·45	0·67	0·50	0·34	0·50	0·24
II.	Moston	0·57	0·66	0·30	0·42	0·65	0·18	0·11	0·62	0·33	0·41	0·27
II.	Newton	0·52	0·47	0·49	0·57	0·27	0·39	0·29	0·36	0·33	0·40	0·36
II.	Bradford	0·75	0·42	0·58	0·49	0·49	0·69	0·68	0·52	0·50	0·55	0·67
II.	Beswick	0·75	0·43	0·68	0·67	0·49	0·33	0·57	0·32	0·39	0·49	0·95
II.	Clayton	0·68	0·24	0·78	0·51	0·56	0·61	0·40	0·44	0·34	0·49	0·69
III.	Ardwick	1·30	0·80	0·74	0·94	1·02	0·98	0·75	0·60	0·70	0·82	0·68
III.	Openshaw	1·12	0·84	0·80	1·11	0·99	0·78	0·73	0·66	0·58	0·81	0·58
III.	West Gorton	1·12	0·75	0·67	0·76	0·81	0·64	0·73	0·66	0·82	0·73	0·70
III.	Rusholme and Kirks...	0·84	0·97	0·91	0·86	0·46	0·58	0·49	0·75	0·47	0·69	0·29
III.	Chorlton-upon-Medlock	0·83	0·66	0·69	0·77	0·67	0·58	1·10	0·54	0·64	0·71	0·69
III.	Hulme	1·03	0·96	0·87	0·97	0·92	0·83	0·92	0·96	0·68	0·89	0·79
III.	Moss Side	..	..	..	..	..	..	..	0·25	0·76	..	0·66
III.	Withington	..	..	..	..	..	..	..	0·36	0·47	..	0·34

In any discussion of the results of work done under a notification scheme, it is to be remembered that there is a considerable section of the poorer classes who are but little amenable to instruction, or at all events cannot be expected to continue for a long period to carry out precautions.

This applies to the inhabitants of common lodging-houses and of similar houses, to tramps, casual labourers, and others. Such persons make up a considerable part of those found in the Union Hospitals. It is no inconsiderable misfortune that they are of necessity the companions of the more decent poor who suffer from the same disease, and to whom, if not on any other account, the Union Hospital is not a desired shelter. These patients are preponderatingly males.

If a notification scheme is working successfully, it is among the members of society other than this class that we should expect its success to have become manifest.

We should therefore expect the death-rate to have fallen more in North Manchester, notwithstanding that the population is of the working class, than in South Manchester, and more in South Manchester than in the Township, and such we find to be the case.

We should expect the improvement to be much greater in the female than in the male death-rate, and this also we find to be the case, as shown in Table 3—Phthisis—Annual Report for 1908.

We should expect it to be greater in children than in adults, and this also is the case.

It is also manifest from the investigations made into the histories of individual families, long notified and recently notified.

We may, however, follow the matter into further detail by dividing up the deaths from Phthisis in the five years 1901–1905 into males and females, sub-dividing each group into three, viz., those occurring at home, those in the Union Hospitals, those in other institutions. These may be further distributed to the sanitary districts in which they have previously resided, and the death-rates may be calculated out. When this is done, the results are as given in the following tables :—

Death-rates from Phthisis, Males, 1901-1905.

Statistical Divisions	Deaths occurring at Home							Deaths occurring at the Union Hospitals							Deaths occurring at the Other Hospitals							Grand Total, all ages
	Age 0–4	Age 5–14	Age 15–24	Age 25–44	Age 45–64	Age 65 and over	All ages	Age 0–4	Age 5–14	Age 15–24	Age 25–44	Age 45–64	Age 65 and over	Age ages	Age 0–4	Age 5–14	Age 15–24	Age 25–44	Age 45–64	Age 65 and over	All ages	
City of Manchester	0.296	0.218	1.079	2.085	2.849	1.090	1.350	0.018	0.049	0.272	1.425	3.133	2.243	0.982	0.062	0.056	0.081	0.182	0.120	—	0.107	2.439
(1) Manchester Township	0.285	0.345	0.947	2.391	3.067	0.754	1.489	0.026	0.105	0.637	3.493	7.668	6.889	2.549	0.104	0.075	0.093	0.264	0.164	—	0.150	4.188
(2) North Manchester ...	0.262	0.149	1.045	1.712	2.086	0.678	1.062	—	0.021	0.058	0.217	0.331	0.113	0.124	0.037	0.064	0.081	0.145	0.136	—	0.096	1.282
(3) South Manchester ...	0.327	0.203	1.172	2.182	3.193	1.575	1.475	0.028	0.041	0.229	1.137	2.193	0.501	0.727	0.057	0.041	0.074	0.162	0.084	—	0.092	2.294
Manchester Township :																						
Ancoats.....	0.353	0.512	0.970	2.230	3.132	—	1.436	—	0.043	0.508	2.652	5.731	5.366	1.788	—	0.128	0.092	0.442	0.200	—	0.204	3.428
Central	—	0.386	1.154	2.159	3.205	2.381	1.595	—	0.154	0.747	4.361	11.586	12.500	3.661	—	0.077	0.065	0.220	0.247	—	0.140	5.396
St. George's	0.333	0.194	0.803	2.579	3.231	0.948	1.495	0.055	0.129	0.664	3.610	7.471	10.111	2.515	0.222	0.032	0.105	0.198	0.101	—	0.117	4.127
North Manchester :																						
Cheetham	0.090	0.050	1.079	1.128	1.684	2.126	0.848	—	—	0.047	0.255	0.532	—	0.150	0.090	0.050	0.235	0.120	0.177	—	0.161	1.159
Crumpsall	—	—	0.994	0.900	0.342	—	0.529	—	—	—	0.150	—	—	0.048	—	—	—	—	—	—	—	0.577
Blackley	—	0.217	1.235	3.024	2.062	—	1.509	—	—	—	0.288	—	—	0.091	—	—	—	0.144	0.344	—	0.091	1.691
Harpurhey	0.336	—	1.184	2.038	2.618	—	1.231	—	0.108	0.132	0.146	0.201	—	0.118	—	0.108	—	0.073	—	—	0.047	1.396
Moston	—	0.267	0.713	1.975	2.296	—	1.097	—	—	—	—	—	—	—	—	—	—	0.180	—	—	0.058	1.155
Newton	0.354	0.097	0.905	2.156	2.947	1.039	1.291	—	0.049	0.106	0.260	0.253	—	0.142	0.089	0.097	0.053	0.074	0.168	—	0.088	1.521
Bradford	0.118	0.421	1.097	1.880	2.656	—	1.181	—	—	0.078	0.243	0.978	—	0.200	—	0.140	0.078	0.243	0.140	—	0.133	1.514
Beswick	1.152	0.148	1.812	1.068	0.876	—	0.965	—	—	—	0.475	—	1.835	0.172	—	—	—	0.119	—	—	0.034	1.171
Clayton	0.282	0.167	0.665	0.977	0.758	—	0.577	—	—	—	—	—	—	—	—	—	—	0.140	0.379	—	0.082	0.659
South Manchester :																						
Ardwick	0.390	0.174	1.031	1.932	2.582	2.367	1.259	—	0.044	0.328	0.717	1.595	—	0.509	—	—	—	0.218	0.304	—	0.106	1.874
Openshaw	—	0.066	1.195	1.706	1.782	0.627	1.005	—	0.066	—	0.487	1.114	—	0.306	—	0.066	0.075	0.098	—	—	0.058	1.369
West Gorton	0.297	0.058	1.272	2.239	3.452	—	1.381	—	—	0.201	0.685	1.448	—	0.416	0.099	0.058	0.067	0.365	0.111	—	0.161	1.958
Rusholme and Kirk. ..	—	0.097	1.128	1.776	3.137	2.247	1.331	0.147	—	0.087	0.209	1.004	—	0.235	—	—	0.260	0.157	—	—	0.105	1.671
Chorlton-upon-Medlock	0.390	0.123	1.178	2.296	2.938	1.646	1.549	0.078	0.082	0.277	1.811	3.014	—	1.153	—	0.041	0.104	0.095	0.096	—	0.082	2.784
Hulme	0.510	0.441	1.233	2.671	4.408	2.332	1.861	—	0.029	0.285	1.670	3.110	1.166	1.018	1.153	0.059	0.032	0.104	—	—	0.070	2.949
Moss Side	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Withington.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Death-rates from Phthisis, Females, 1901–1905.

Statistical Divisions	Deaths occurring at Home							Deaths occurring at the Union Hospitals							Deaths occurring at the Other Hospitals							Grand Total, all ages
	Age 0–4	Age 5–14	Age 15–24	Age 25–44	Age 45–64	Age 65 and over	All ages	Age 0–4	Age 5–14	Age 15–24	Age 25–44	Age 45–64	Age 65 and over	All ages	Age 0–4	Age 5–14	Age 15–24	Age 25–44	Age 45–64	Age 65 and over	All ages	
City of Manchester	0.214	0.322	1.014	1.520	1.203	0.317	0.941	0.024	0.081	0.256	0.715	0.968	0.824	0.453	0.073	0.049	0.094	0.088	0.034	0.021	0.070	1.464
(1) Manchester Township	0.280	0.398	1.046	1.814	1.574	0.177	1.096	0.025	0.162	0.473	1.762	2.609	2.483	1.117	0.127	0.074	0.115	0.114	0.020	—	0.090	2.303
(2) North Manchester ...	0.150	0.334	1.036	1.422	1.097	0.225	0.882	—	—	0.095	0.113	0.137	—	0.072	—	0.032	0.127	0.083	0.051	0.075	0.068	1.022
(3) South Manchester ...	0.224	0.273	0.981	1.445	1.073	0.440	0.901	0.042	0.096	0.255	0.609	0.615	0.484	0.372	0.098	0.048	0.060	0.079	0.031	—	0.061	1.334
Manchester Township :																						
Ancoats.....	0.321	0.251	1.137	1.872	1.475	0.607	1.076	—	0.084	0.295	1.185	2.065	3.035	0.804	0.107	0.042	0.126	0.218	0.059	—	0.114	1.994
Central	0.270	0.607	0.855	1.158	1.306	—	0.884	—	0.228	0.428	2.501	3.638	5.025	1.600	0.405	0.076	0.244	0.093	—	—	0.140	2.624
St. George's	0.326	0.404	1.042	2.062	1.828	—	1.199	—	0.187	0.619	1.787	2.605	1.900	1.112	0.054	0.093	0.033	0.046	—	—	0.046	2.357
North Manchester :																						
Cheetham	0.171	0.052	0.616	1.251	1.097	—	0.685	—	—	0.041	0.243	0.439	—	0.139	—	—	0.082	0.104	0.145	—	0.070	0.894
Crumpsall	—	—	0.753	0.754	—	2.062	0.694	—	—	—	—	—	—	—	—	—	—	—	—	1.031	0.041	0.735
Blackley	—	0.799	0.859	2.575	2.026	—	1.417	—	—	0.430	0.136	—	—	0.125	—	—	0.644	0.136	—	—	0.167	1.709
Harpurhey	0.358	0.510	1.288	1.135	1.583	—	0.962	—	—	0.107	0.134	0.352	—	0.107	—	—	—	0.067	—	—	0.021	1.151
Moston	—	0.127	0.934	1.301	0.704	—	0.711	—	—	—	—	—	—	—	—	—	0.267	0.087	—	—	0.082	0.793
Newton	0.088	0.098	1.141	1.530	0.913	—	0.839	—	—	0.156	0.107	0.152	—	0.084	—	—	0.104	0.142	—	—	0.063	0.986
Bradford	0.251	0.626	1.298	1.544	0.637	—	0.959	—	—	0.076	0.119	0.127	—	0.065	—	—	0.153	—	0.255	—	0.065	1.279
Beswick	—	1.170	1.660	1.617	1.062	—	1.197	—	—	—	0.323	0.266	—	0.129	—	0.292	—	0.108	0.266	—	0.129	1.455
Clayton	0.276	0.180	1.427	1.504	1.463	1.887	1.012	—	—	—	0.137	—	—	0.040	—	—	0.408	0.273	—	—	0.162	1.214
South Manchester :																						
Ardwick	0.226	0.452	0.812	1.471	1.478	—	0.936	—	—	0.090	0.360	0.269	0.318	0.174	—	—	0.045	0.120	—	—	0.046	1.156
Openshaw	0.220	0.196	0.728	1.532	0.632	0.452	0.763	—	—	0.073	0.335	0.316	—	0.156	—	0.065	0.291	0.239	0.021	—	0.170	1.089
West Gorton	0.099	—	1.077	1.163	0.886	—	0.676	—	0.057	0.336	0.313	1.083	—	0.312	0.099	0.172	—	0.089	—	—	0.078	1.066
Rusholme and Kirk. ..	—	—	1.174	0.772	1.000	0.402	0.681	—	0.090	—	0.163	0.100	—	0.087	0.157	0.090	0.069	—	—	—	0.043	0.811
Chorlton-upon-Medlock	0.308	0.359	0.820	1.298	0.797	0.690	0.848	0.077	0.079	0.498	0.958	0.997	0.517	0.561	0.231	0.040	—	0.060	—	—	0.039	1.448
Hulme	0.491	0.432	1.132	2.495	3.685	1.399	1.712	0.098	0.231	0.261	0.877	0.970	1.224	0.557	0.098	0.029	—	0.058	—	—	0.035	2.384
Moss Side	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Withington.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Attention may be drawn to the following points:—The male death-rates are for the most part much higher than the female. The difference is greatest in the Manchester Township and least in North Manchester, and is associated with the collection of males in higher proportion in the poorer parts of the town. The difference is, however, less in Hulme than in other poor parts of Manchester.

The death-rates of Phthisis due to persons dying at home is higher in Hulme than in any other part of Manchester, and, moreover, this excess of death-rate is visible in the lower as well as in the higher ages. There are thus influences specially causing a high family death-rate in Hulme. These influences are probably crowding and lack of ventilation in the rear of houses.

As regards deaths occurring in Union Hospitals the most striking feature in the Manchester Township is the increase in the death-rate ascribed to Phthisis into advanced years. This is due to common lodging-houses and houses of a similar class, the most resisting giving way at last to the intensity of infection in these houses. This tendency is also observable in Hulme and Ardwick, and is no doubt to be associated with crowding amongst women.

The high Phthisis death-rate in any district is thus not a direct outcome of poverty, but is dependent on poverty, which leads to overcrowding, and to unfavourable sanitary conditions.

As regards the general working of the Notification of Phthisis, a description is given in a pamphlet by the late Alderman McDougall, of which a copy may be obtained by any member of the Council on request. A summary of the work, however, is given in Tables 4, 5, and 6.

Table 4 shows, not the total notifications, but the new cases notified during 1909, and the sources from which they are obtained:—

TABLE 4.

PHTHISIS, 1909—NUMBER OF NEW CASES NOTIFIED.

Year	Poor-law Cases	Institutions	Private Practitioners	Total
1900	578	455	540	1573
1901	625	373	341	1339
1902	667	305	303	1275
1903	556	550	251	1357
1904	512	440	250	1202
1905	527	588	291	1406
1906	565	510	304	1379
1907	634	646	310	1590
1908	659	498	346	1503
1909	681	542	384	1607
Total	6004	4907	3320	14231

The general administrative procedures are summarised in the following table:—

TABLE 6.—STATISTICS RELATING TO PHTHISIS.

	1909	1908	1907	1906	1905	1904	1903	1902	1901	1899 Sep. 1 to Dec. 31 1900	To
Cases Visited and Registered—											
Males	1034	971	988	929	817	745	848	917	959	1017	92
Females	567	529	600	464	565	471	515	532	546	732	55
Totals ...	1601	1500	1588	1393	1382	1216	1363	1449	1505	1749	147
Houses Disinfected—											
1. By Corporation—											
(*a*) With solution of chlorinated lime only	590	572	581	495	475	449	484	601	792	581	56
(*b*) With lime solution only	0	0	0	0	0	0	0	2	15	109	1
(*c*) By Esmarch's method and solution of chlorinated lime	1419	1177	1106	1042	1086	788	643	359	144	0	77
Totals ...	2009	1749	1687 (in 1556 houses)	1537 (in 1346 houses)	1561 (in 1387 houses)	1237 (in 1084 houses)	1127	962	951	690	135
2. By Tenants—											
Esmarch's method	2690	3011 (in 1632 houses)	2860 (in 1627 houses)	2637 (in 1566 houses)	2016 (in 1267) house	2266 (in 1404 houses)	2118	1937	1776	1299	226
Totals...	4699	4760	4547	4174	3577	3503	3245	2899	2727	1989	361
Specimens of Sputum Examined:											
Positive	531	419	350	349	298	242	239	248	232	104	30
Negative	985	866	654	562	475	418	389	337	285	154	51
Totals ...	1516	1285	1004	911	773	660	628	585	517	258	81
Deaths—											
(*a*) Among total cases visited and registered	814	746	687	680	566	661	578	652	638	653	667
(*b*) Among all cases for Manchester (including those under *a*)	...	1089	1082	1089	988	1106	1023	1145	1142	1403	1006
Cases reported as sent to Hospital	2002	2225	1993	1541	1349	1207	1159	1166	1012	991	1464
Notified from common lodging-houses..	231	302	288	223	155	188	206	239	254	187	227

TABLE 5.—PHTHISIS, 1909.

		CASES NOTIFIED					DEATHS	DEATH-RATE	NOTIFICATION
		First Quarter	Second Quarter	Third Quarter	Fourth Quarter	TOTAL	1909	Per 1000 living	Rate per 1000
City of Manchester		**512**	**414**	**336**	**345**	**1607**	**1115**	**1·70**	**2·42**
I.	Manchester Township	236	191	147	127	701	393	3·18	5·66
II.	North Manchester	89	75	60	63	287	181	0·89	1·41
III.	South Manchester	187	148	129	155	619	541	1·65	1·82
I.	Ancoats	74	72	53	44	243	133	3·08	5·63
	Central	48	31	27	25	131	91	3·76	5·42
	St. George's	114	88	67	58	327	169	2·99	5·79
II.	Cheetham	23	14	15	16	68	33	0·77	1·58
	Crumpsall	2	1	3	1	7	7	0·74	0·74
	Blackley	4	1	7	4	16	9	0·91	1·61
	Harpurhey	5	13	5	8	31	20	0·81	1·26
	Moston	7	4	8	7	26	21	0·94	1·16
	Newton	21	16	7	16	60	47	1·20	1·52
	Bradford	18	14	7	4	43	24	0·94	1·69
	Beswick	6	11	5	3	25	10	0·79	1·97
	Clayton	3	1	3	4	11	10	0·63	0·69
III	Ardwick	28	18	20	13	79	78	1·70	1·72
	Openshaw	12	11	2	13	38	48	1·64	1·30
	West Gorton	22	12	9	14	57	41	1·25	1·74
	Rusholme and Kirkmanshulme	13	13	14	6	46	24	0·88	1·68
	Chorlton-upon-Medlock	43	36	32	29	140	135	2·45	2·54
	Hulme	44	46	46	47	183	147	2·38	2·96
	Moss Side	19	8	3	7	37	36	1·25	1·29
	Withington	6	4	3	3	16	32	0·68	0·34
	Gorton	...	...	...	15	15	...	...	...
	Levenshulme	...	...	...	8	8	...	...	..

NOTE.—**The Rates in this Table are calculated on a total of 1,584, thus excluding the 23 cases from Gorton and Levenshulme.**

Table 5 shows for the year 1909 the proportion of notified cases per 1,000 of the population for the whole City, for each main division, and for every sanitary district. Side by side with these figures stand the death-rates. A fair idea of the completeness with which cases are notified may be obtained from this table. If we may assume generally that cases exceed deaths in the proportion of at least 2 to 1, we see that there must be a large number of cases still unnotified, say about one-third.

The greatest deficiency in notification would, on this assumption, be in South Manchester, and of individual districts in Crumpsall, Clayton, Ardwick, Openshaw, Rusholme, Chorlton-upon-Medlock, Moss Side, and Withington.

Table 6 gives a summary of the routine action consequent on notification.

It is to be remembered, however, that each case notified, unless for some reason it is removed from the books, is visited at fixed intervals of a month or two months, while the carrying out of precautions is under constant supervision.

A very large amount of work is done by Mr. Lock in seeking out the proper quarters from which help may be afforded to poor persons—probably in not less than 1,000 cases a year.

The sources from which notifications come are set forth in detail in Table 7:—

TABLE 7.

PARTICULARS OF CASES NOTIFIED FROM INSTITUTIONS DURING THE YEAR 1909.

Institutions	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Total
Manchester Union Workhouse	141	89	58	60	348
Chorlton Union Workhouse	52	37	22	38	149
Prestwich Union Workhouse.....	10	11	10	9	40
Poor-law Union Cases	51	42	26	25	144
Royal Infirmary	35	20	39	27	121
Ancoats Hospital	12	22	17	14	65
Chorlton-upon-Medlock Dispensary ...	3	...	4	...	7
Hulme Dispensary	4	3	4	3	14
Gartside Street Dispensary	18	11	4	5	38
Medical Mission, Red Bank	1	1	1	2	5
St. Mary's Hospital	...	...	1	1	2
Northern Hospital	2	...	...	...	2
Consumption Hospital	60	75	70	78	283
Southern Hospital	...	...	...	...	...
H.M. Prison	2	...	...	2	4
Jewish Hospital	1	...	...	...	1
Cases from Death Returns	...	...	...	...	...
Children's Hospital, Pendlebury	...	...	...	...	...
Total	392	311	256	264	1223
Private Practitioners	120	103	80	81	384

Further particulars as regards details of administration are given in the following statement :—

TABLE 8.—PHTHISIS, 1909.

2,940 special cases have been entered in the Business Book for investigation and cleansing after removal to hospital, change of residence, death, or under special circumstances.

577 letters have been sent to owners with reference to as many houses, with subsequent correspondence in many instances.

607 tenants have allowed the removal of bedding, etc., for disinfection; or have themselves burned it in a few cases.

19,500 cardboard boxes have been prepared in the office and supplied to patients for spitting purposes in the home.

446 spit bottles have been supplied for use outside the house.

1,195 notices for display upon the walls of warehouses, offices, closets, etc., warning against the habit of spitting, have been supplied to applicants.

94 patients have been examined by the Medical Officer of Health, with the aid of the Assistant to the Medical Officer, prior to being referred to the Physicians of the Sanatorium. In addition, a number of patients were examined for other reasons or purposes.

A great mass of correspondence has been carried on in regard to the circumstances and placing of patients, but a great part of the work cannot well be classified.

The summary of the histories of infection obtained by the inquiring officers is as follows :—

TABLE 9.

SOURCES OF INFECTION—PHTHISIS, 1909.

CASES OTHER THAN THOSE NOTIFIED FROM THE WORKHOUSES.

MOST PROBABLE SOURCE OF INFECTION	Likely 1902-1909	1909			
		Likely	Less Likely	Possible	Total
Father	226	31	13	3	47
Mother	137	16	20	1	37
Brother	222	37	18	2	57
Sister	172	22	9	..	31
Husband	80	9	2	2	13
Wife	42	4	7	1	12
Uncle	36	4	..	1	5
Aunt	35	8	2	..	10
Son	48	6	2	..	8
Daughter	36	8	4	..	12
Grandfather	9	1	2	..	3
Grandmother	5	1	..	..	1
Nephew	8	2	..	..	2
Niece	6	2	..	..	2
Father-in-law	1	..	..	..	..
Mother-in-law	7	1	1	..	2
Son-in-law	1	..	..	..	..
Brother-in-law	43	7	1	..	8
Sister-in-law	24	3	2	..	5
Cousin	26	6	1	1	8
Relatives	22	10	4	..	14
Companion	215†	46	14	..	60
Neighbour	90†	19	9	5	33
Tenant (Landlady, etc.)	20	3	..	..	3
Lodger, Fellow-lodger	53	4	4	..	8
Patients, Hospital, etc.	6	4	1	..	5
Employer	13†	4	1	..	5
Workfellow	257†	48	19	3	70
Workplace or Work	93†	42	96	11	149
Houses (including public-houses, etc.)	124†	31	67	2	100
Milk or Food	11	7	21	1	29
Club	..	..	..	..	..
Clothing	..	..	..	..	..
Army	13	4	1	..	5
Extension from Bone, etc., Disease	1	..	..	..	..
Railway carriages	..	..	..	..	..
Schoolfellow	11	4	35	7	46
Monkey	1	..	..	..	..
Infected out of Manchester	..	..	..	..	164
Multiple sources	..	..	..	..	212
No information	..	..	..	..	119
Total	2094	394	356	40	1073*

* This total does not include the 212 cases with Multiple Sources. † Seven years.

TABLE 9.—*continued.*

SOURCES OF INFECTION—PHTHISIS, 1909.

CASES NOTIFIED FROM THE WORKHOUSES.

MOST PROBABLE SOURCE OF INFECTION	Likely 1902-1909	1909			
		Likely	Less Likely	Possible	Total
Father	53	9	6	..	15
Mother	65	11	5	..	16
Brother	91	14	2	..	16
Sister	68	5	2	1	8
Husband	78	12	3	1	16
Wife	64	12	1	..	13
Uncle	10	4	1	..	5
Aunt	5	3	..	..	3
Nephew and Niece	23	1	..	..	1
Son	29	4	1	..	5
Daughter	19	3	..	1	4
Step-brother	2	..	..	..	..
Father-in-law	9	1	..	..	1
Mother-in-law	1	..	..	..	..
Son-in-law	3	..	..	..	..
Brother-in-law	14	..	2	..	2
Sister-in-law	11	2	..	..	2
Cousin	6	..	..	..	..
Relatives	7	3	..	..	3
Companion	193†	49	9	2	60
Schoolfellow	4	..	4	1	5
Neighbour	35†	5	3	1	9
Tenant (Landlady, etc.)	16	1	..	..	1
Lodger and Fellow-lodger	54	8	1	..	9
Carried forward	860	147	40	7	194

† Seven years.

TABLE 9.—*continued.*

CASES NOTIFIED FROM THE WORKHOUSES—*continued.*

MOST PROBABLE SOURCE OF INFECTION	Likely 1902-1909	1909			
		Likely	Less Likely	Possible	Total
Brought forward.....	860	147	40	7	194
Employer	5	3	1	..	4
Workfellow	112	26	6	1	33
Workplace or Work	86	31	44	7	82
Houses (including public-houses, etc.)	260	..	259	..	259
Army	35	5	..	..	5
Milk or Food	3	1	6	..	7
Asylum, Workhouse, etc.....	23	5	4	..	9
Extension from Bone, etc., Disease	1	..	..	..	..
Infected out of Manchester ...	..	..	..	..	154
No information	..	..	..	..	88
Multiple Sources	..	..	..	..	309
Total.....	1385	218	360	15	835*

* This total does not include the 309 cases with Multiple Sources.

The table presents one unusual feature in the very large numbers found, in 1909, to have been infected out of Manchester, viz., 164 in private houses and 154 in Workhouse Hospitals, or a total of 318 out of 1,607 notified cases. This marks a very great advance on the number for 1908, viz., 86 out of 1,500 cases notified.

It has been for long my opinion that though the Phthisis of Manchester is largely produced in common lodging-houses, and under similar conditions, yet no inconsiderable part of our high mortality is due to the large numbers

who drift from without into our common lodging-houses, and thence into the Union Hospitals. These figures would appear to show that such is the case. There is, I feel sure, no such flow outwards of Phthisis. Of this, however, no proof can be obtained.

It might be advanced that the great improvement in North Manchester is fictitious, and is due to drift inwards of cases from that district to the Manchester Township. Such, however, is not the case, as is shown by the following table which Mr. Lock has prepared :—

TABLE 10.—PHTHISIS AND DRIFT, 1907 TO 1909.

1907	1908	1909	Total	Divisions
				Manchester Township.
455	419	457	1,331	Infected in this Division, and still living there when notified.
39	28	36	103	Removed into it from North Manchester.
24	25	19	68	,, ,, ,, South ,,
134	114	128	376	,, ,, ,, outside ,,
				North Manchester.
180	165	166	511	Infected in this Division, and still living there when notified.
40	23	30	93	Removed into it from Manchester Township.
9	12	9	30	,, ,, ,, South Manchester.
50	48	56	154	,, ,, ,, outside ,,
				South Manchester.
358	383	417	1,158	Infected in this Division, and still living there when notified.
22	16	23	61	Removed into it from Manchester Township.
13	15	5	33	,, ,, ,, North Manchester.
85	93	98	276	,, ,, ,, outside ,,
1,140	1,086	1,262	3,488	Total Manchester cases.
269	255	282	806	Imported cases.
1,409	1,341	1,544	4,294	Total cases.

These figures quite dispose of the view that drift materially affects the relation of the death-rates of the main divisions of the City one to another.

But they agree with the previous table in showing that out of a total of 1,544 cases whose places of infection are believed to be known, 282 came in 1909 from outside the City.

The great part played by common lodging-houses in the propagation of Phthisis has long been insisted upon, and it has been suggested that houses let in lodgings have also played no inconsiderable part in the production of Phthisis.

The following tables handed to me by Mr. Lock throw some light on the subject, and appear to show that such houses do in reality exercise a considerable influence :—

TABLE II.—INCIDENCE OF PHTHISIS IN LODGING-HOUSES (NOTIFIED CASES).

Year	Lodgers.	C. L. H.	Other Sources	Total
1906	274	223	882	1,379
1907	341	288	961	1,590
1908	263	302	895	1,460
1909	202	231	1,168	1,601
Total	1,080	1,044	3,906	6,030

Table 12.

Number of Houses other than Common Lodging-Houses at which Consumptives were Lodging at Time of Notification during 1909.

	Lodging Houses.	Rooms	Persons
Manchester City	**263**	**1,106**	**1,178**
Manchester Township	97	336	370½
North Manchester	37	167	192½
South Manchester	129	603	615
Ancoats	31	116	146
Central	30	112	116½
St. George's	36	108	108
Cheetham	20	100	108½
Crumpsall	..	..	..
Blackley	2	9	9½
Harpurhey	2	8	9
Moston	..	..	..
Newton	3	14	19
Bradford	3	12	17
Beswick	3	8	12½
Clayton	4	16	17
Ardwick	17	73	68½
Openshaw	5	16	19½
West Gorton	11	46	49½
Rusholme	9	41	38½
Chorlton-on-Medlock	36	187	183½
Hulme	42	189	202
Moss Side	8	49	51
Withington	1	2	2½

The number of lodging-houses bears no relation to the number of rooms and persons. Information was wanting for some of the houses.

Table 13.—Incidence of Phthisis in Lodging-houses other than Common Lodging-houses, for the Four Years 1906 to 1909.

Statistical Divisions	Patient a Member of Family — Males					Patient a Lodger — Males					Patient a Member of Family — Females					Patient a Lodger — Females					Total Members of Family M&F	Total Lodgers M&F	Total Male and Female of both Classes
	1906	1907	1908	1909	Total	1906	1907	1908	1909	Total	1906	1907	1908	1909	Total	1906	1907	1908	1909	Total			
City of Manchester	**49**	**71**	**54**	**39**	**213**	**140**	**133**	**111**	**83**	**467**	**45**	**50**	**33**	**23**	**151**	**69**	**87**	**76**	**57**	**289**	**364**	**756**	**1120**
I. Manchester Township..	16	24	12	14	66	66	61	45	22	194	15	16	9	6	46	30	44	39	32	145	112	339	451
II. North Manchester ..	7	11	7	3	28	13	21	20	8	62	14	9	5	5	33	8	11	5	2	26	61	88	149
III. South Manchester ..	26	36	35	22	119	61	51	46	53	211	16	25	19	12	72	31	32	32	23	118	191	329	520
I. Ancoats	5	7	2	4	18	26	18	15	5	64	4	3	6	4	17	8	6	11	11	36	35	100	135
I. Central	7	7	3	2	19	19	15	15	8	57	6	5	1	..	12	4	10	11	9	34	31	91	122
I. St. George's..	4	10	7	8	29	21	28	15	9	73	5	8	2	2	17	18	28	17	12	75	46	148	194
II. Cheetham	4	9	2	..	15	7	12	15	5	39	7	2	1	2	12	5	6	2	..	13	27	52	79
II. Crumpsall	..	1	..	..	1	1	..	..	..	1	..	..	..	..	..	1	1	..	1	3	1	4	5
II. Blackley	1	..	..	..	1	1	..	1	..	2	1	..	..	..	1	1	..	1	..	2	2	4	6
II. Harpurhey	..	..	..	..	..	1	..	..	..	1	2	1	2	..	5	1	..	..	..	1	5	2	7
II. Moston	..	..	..	..	..	..	1	..	1	2	1	2	..	..	3	..	..	..	1	1	3	3	6
II. Newton..	1	1	2	3	7	1	2	1	2	6	3	3	..	1	7	..	3	..	..	3	14	9	23
II. Bradford	1	..	..	..	1	2	3	..	..	5	..	..	2	2	4	..	..	1	..	1	5	6	11
II. Beswick	..	..	2	..	2	..	2	1	..	3	..	1	..	..	1	..	1	..	..	1	3	4	7
II. Clayton..	..	..	1	..	1	..	1	2	..	3	..	..	..	..	..	..	..	1	..	1	1	4	5
III. Ardwick	1	2	6	4	13	11	5	4	6	26	2	4	1	..	7	2	4	6	1	13	20	39	59
III. Openshaw	..	3	3	..	6	3	3	3	..	9	1	..	..	..	1	..	..	..	1	1	7	10	17
III. West Gorton	..	2	2	3	7	2	3	5	4	14	..	2	2	1	5	3	2	2	..	7	12	21	33
III. Rusholme & Kirk. ..	1	3	3	2	9	..	3	4	1	8	2	1	..	..	3	2	1	2	1	6	12	14	26
III. Chorlton-upon-Medlock	11	11	8	5	35	27	14	10	12	63	4	7	6	2	19	8	12	11	7	38	54	101	155
III. Hulme	12	13	10	5	40	14	18	17	23	72	5	9	6	6	26	14	13	10	12	49	66	121	187
III. Moss Side	1	1	3	2	7	4	5	2	5	16	2	1	4	..	7	1	..	..	1	2	14	18	32
III. Withington	..	1	..	..	1	..	..	1	1	2	..	1	..	..	1	1	..	1	..	2	2	4	6
Gorton	..	..	..	1	1	..	..	..	1	1	..	..	..	3	3	..	..	..	..	..	4	1	5

The last table casts some light on the intensity of lodging in different districts in the City, and incidentally on the different death-rates in Table 3.

The diminution in the lodging classes suffering from Phthisis notified since 1907 is a striking fact.

The interpretation is not altogether evident. The continued depression in trade, however, may have driven from Manchester, in the later years, a number of those who usually live in lodgings. In times of depression these will be diminished through an increased number having recourse to the Union Hospitals.

We also note the small number of persons living in lodgings in 1908, viz., 1,178 in 263 houses.

If we refer to Table 13 we find that in four years 1,120 cases were notified from houses *let in lodgings* or in which lodgers are taken, or 280 per annum. These lodgers form a fluctuating population. Nevertheless this population, embracing as it does 6,000 or more persons living in houses *let in lodgings*, will materially raise the Phthisis death-rate. We perceive that the districts from which the greatest numbers of such deaths come are St. George's, Central, Ancoats, Hulme, Chorlton-on-Medlock, Cheetham, and Ardwick.

If now we refer back to the tables on pages 109 and 110 we find that the characteristic influence of this class of population on the death rates makes itself evident in St. George's, Central, Ancoats, Hulme, and Ardwick.

In the first three, the common lodging-houses as an influence in causing a high mortality late in life overshadow houses let in lodgings. But the figures just given help to explain the Poor Law death-rates for Ardwick and Hulme. Cheetham is a Jewish district, and the conditions are different in some essential respects.

An important practical question in regard to Poor Law cases is this, whether intemperance has anything to do with their reduction to pauperism. The following statement is derived from the patients themselves or their relatives.

TABLE 14.

PHTHISIS 1909.—HABITS OF PERSONS OVER 20 YEARS OF AGE.

Notified from Poor Law Sources.

Sex	Reported Temperate	Reported Intemperate	Not Known	Total
Males	106	332	46	484
Females.....	88	56	12	156
Total	194	388	58	640

TABLE 14.—*continued.*

Notified from Other than Poor Law Sources.

Sex	Reported Temperate	Reported Intemperate	Not Known	Total
Males	223	157	30	410
Females.....	213	28	18	259
Total	436	185	48	669

The numbers of the latter class who had come under the Poor Law by the end of the year were :—

14 (6·3%) Temperate males.
49 (31·2) Intemperate males.
25 (11·27) Temperate females.
11 (39·3) Intemperate females.

From this table it would appear that the pauperism of Poor Law consumptives is determined to a considerable extent by intemperance.

The following statement embraces the facts which were known in March, 1910, with regard to Corporation patients admitted respectively into the Crossley Sanatorium and into Clayton Hospital.

Of 126 males admitted into the Sanatorium from 1905 to 1909 inclusive, 66 were then known to be living, 12 having been lost sight of. Of 73 females admitted, 31 were still alive, 11 having been lost sight of.

Of 168 male patients admitted into Clayton Hospital from 1904 to 1909 inclusive, 34 were still alive, 11 having been lost sight of.

Of 123 females admitted into Clayton Hospital from 1905 to 1909 inclusive, 41 were still alive, 12 having been lost sight of.

TABLE 15.

DELAMERE SANATORIUM.

Males.

Year	No. of new cases	No. of re-admissions	Died in the Sanatorium	Died elsewhere	Lost sight of	Known to be still living March 31st, 1910
1905	16	1	0	8	2	6
1906	18	2	1	10	4	3
1907	29	2	1	13	2	13
1908	36	3	1	11	3	21
1909	27	4	1	2	1	23
Total	126	12	4	44	12	66

TABLE 15.—*continued.*

Females.

1905	14	0	1	6	4	3
1906	14	1	0	9	1	4
1907	16	2	0	8	3	5
1908	13	3	0	6	2	5
1909	16	1	0	1	1	14
Total	73	7	1	30	11	31

TABLE 16.

CLAYTON HOSPITAL.

Males.

Year	No. of new cases	No. of re-admissions	Died in the Hospital	Died elsewhere	Lost sight of	Known to be still living March 31st, 1910
1904	20	0	3	15	1	1
1905	25	2	8	13	1	3
1906	40	3	6	27	3	4
1907	30	2	9	15	2	4
1908	31	2	8	11	2	10
1909	22	4	2	6	2	12
Total	168	13	36	87	11	34

Females.

1905	20	0	6	7	2	5
1906	21	6	5	9	3	4
1907	27	4	8	9	4	6
1908	31	7	11	7	2	11
1909	24	3	6	2	1	15
Total	123	20	36	34	12	41

From the preceding analysis it would appear that though the death-rate ascribed to Tubercular Phthisis in Manchester is high, and is produced in large measure in the City, it is considerably augmented by the number of phthisical immigrants from without. This would appear to result from a study of the figures for the industrial population of North Manchester.

The special element in the centre of the City which so raises the Phthisis death-rate has so far proved an irreducible minimum.

No solution is here offered. But it appears desirable that Union Hospitals should have conferred on them the power, and imposed upon them the duty, of retaining poor patients unless it be shown that their discharge will not be liable to cause infection in others.

Phthisical poor persons should not be allowed to wander from place to place, and from lodging-house to lodging-house.

Compulsory notification is necessary to give the Sanitary Authority full control over Pulmonary Phthisis.

Adequate assistance to the families of poor consumptives is needful for the success of Sanatorium and other treatment, adequate precautions being taken to insure that such assistance is suitably expended on food and clothing, and that sanitary precautions are carried out.

When this provision has been made, or at the same time, further hospital provision should be made.

It will be matter for careful deliberation whether the measures already adopted here, and apparently successful in North Manchester, and in families generally, can best be developed in association with district dispensaries, or by improvement of the present modes of administration.

There can be little or no doubt as to the success already attained, or as to the sources of failure, where failure has to be admitted. These sources of failure would not be touched by dispensaries.

MILK AND TUBERCULOSIS.

By Mr. J. W. Brittlebank, M.R.C.V.S., D.V.S.M.

I beg to submit my report on the work done during the year.

The duties I was appointed to carry out are—(1) The Inspection of the Manchester Cowsheds and Dairies as to their compliance with the Manchester Regulations made under the Dairies, Cowsheds, and Milkshops Order; (2) to act as Veterinary Inspector in the working of the Milk Clauses contained in the Manchester General Powers Act, 1899.

Manchester Cowsheds.

These number 235 on 121 farmsteads, and have a housing capacity of about 2,000 cows, though the actual number so housed in the City cowsheds at one time falls somewhat short of that number.

In the course of the regular inspection of the City farms, 392 visits have been paid and 710 inspections of cowsheds carried out.

There is no feature of any particular interest to record in connection with this work of supervision of milk production within the City, the condition of the trade remaining very much as in the immediately preceding years. I have found the conditions fairly satisfactory at most of my visits, with occasional lapses on the part of certain individuals, for whom much more attention is necessary than is the case with the majority.

During the year the districts of Gorton and Levenshulme have been added to the City boundaries, and now come within the area of systematic inspection. The amount of ground to be covered having now become very large, and the farms being situated for the most part near the confines of the City, and not always easy of access, it is becoming difficult, if not impossible, to keep up the requisite amount of inspection of these City farms.

The increase of duties in other directions within and without the City to some extent accounts for this, and if a high standard is to be maintained, which can only be done by repeated inspection and persistent effort on the part of the inspecting officer, it is to be hoped that it will be found possible to provide some assistance to carry out the work.

Few structural alterations have been carried out during the year. One new cowshed constructed on approved lines, in accordance with plans submitted, has been erected. In the case of one other cowshed, the farmer has given an undertaking to cease cow-keeping by December, 1910.

The milk supply of one farm having been suspected as the centre from which Scarlet Fever was spread, a considerable amount of work was necessary at the farm. The whole of the udders of the cows were washed with disinfectant, the cowsheds disinfected, and the whole of the milk vessels sterilised. Other preventive precautions were also adopted, but these did not come within my province.

Manchester Cows.

The total number of inspections made of the City cows during the year was 7,267. The number of cows housed within the City boundaries is about 2,000, the exact figure at the last count being 1,986. The full accommodation is not used all the year round.

The quality of the cows kept has been fairly well maintained. The policy of excluding old cows is pursued just as in the past, and the results are fairly good. Many have complained at different times that rigid adherence to the rule of excluding the aged cow means depriving the farmer of the most profitable animals. This may be true, but only in a limited sense, and as has been pointed out the only means of obtaining absolute security in keeping cows that are aged is to have them properly tuberculined before introduction to the City cowsheds. Further, the farmer's view of the situation is not the only one to be considered, and in the absence of a certain guarantee such as would be afforded were the City cows regularly tested with tuberculin, the inspecting officer must protect the public (and himself) by only admitting young cattle, for not alone do they afford greater security against disease, but the quality of milk produced is better. The milk of cows is notoriously poorer as the influence of age is felt.

No progress has been made during the year in securing tuberculosis-free farms, and however desirable such a policy may be, it seems impossible to make any progress until something in the shape of a certificate is given by the Sanitary Authority, which may be used as an advertisement to secure some monetary return for the outlay and trouble to which the farmer has been put in carrying out the necessary operations provided for in the Schedule.

One cow suffering from tuberculosis of the udder was found in one of the City cowsheds, and was slaughtered under my inspection on the day following her discovery. The disease lesions in the carcase, while not very marked, were fairly widespread, with the result that the carcase was condemned.

The Manchester Milk Clauses.

No changes have been made in the methods of working the Milk Clauses of the Manchester General Powers Act, 1899.

Samples of milk are obtained at the Manchester and other railway stations, or elsewhere within the City, by the Food and Drug Inspectors. These are submitted to Professor Delépine for bacteriological examination. All samples reported by him as having been found to cause tuberculosis are followed to their source at the farm by the Medical Officer of Health (or his representative) and the Veterinary Surgeon.

The Veterinary Surgeon examines all the cows on the farm, and takes separate samples from cows having diseased or suspicious udders. All samples are taken in sterilised bottles supplied by Professor Delépine, and every care is taken to exclude extraneous infections. These samples are in turn submitted to Professor Delépine for bacteriological examination, and in this way the fact of a cow having tuberculosis of the udder is definitely ascertained. Samples from cows found by clinical examination to have diseased or suspicious udders, without previous mixed station samples, are collected and treated in the same way.

In all cases a control sample is taken to ensure that the inspection and examination have been satisfactorily concluded, and that every source of infection has been removed.

Tuberculous Milk.

During the year, 645 samples of milk have been collected by the Food and Drugs Inspectors in connection with tuberculosis. Of this number, 623 were taken at the railway stations, and the remainder were taken from carts coming in by road. The number of farmers represented in the total is 535.

Of these 535 farmers, 312 reside in Cheshire, and 15 of them (4·80 per cent.) sent tuberculous milk ; 107 live in Derbyshire, and 8 of them (7·47 per cent.) sent tuberculous milk ; 70 live in Staffordshire, and 6 of them (8·57 per cent.) sent tuberculous milk ; 30 live in Lancashire, and 1 (3·33 per cent.) sent tuberculous milk ; 9 live in Shropshire, and 1 (11·11 per cent.) sent tuberculous milk ; in addition, 5 live in Yorkshire and 2 in Lincolnshire, and from neither county was any tuberculous milk received.

The usual table showing the percentage of tuberculous milk sent into Manchester from 1901 onwards is inserted, being complete to the end of 1909.

TABLE I.

YEAR	Number of farmers' milk tested during the year	Total number found to cause Tuberculosis in the experimental animal	Percentage of farmers sending Tuberculous milk	Percentage of farmers from EACH COUNTY whose milk was found to cause Tuberculosis.					
				Cheshire	Derbyshire	Staffordshire	Shropshire	Lancashire	Yorkshire
1901	272	27	9·9	10·46	9·23	8·00	10·00	...	...
1902	345	36	10·4	12·72	8·65	4·01	...	8·31	...
1903	329	45	13·6	14·76	9·58	15·15	40·00	...	...
1904	318	29	9·1	11·17	6·02	...	...	7·14	25·00
1905	565	47	8·3	10·26	6·00	6·38	...	2·98	12·50
1906	542	42	7·7	8·60	6·50	9·30	12·50	4·0	...
1907	562	38	6·76	7·71	4·48	6·94	12·50	3·70	...
1908	289	27	9·34	11·56	6·25	7·70	...	2·94	12·50
1909	535	31	5·79	4·80	7·47	8·57	11·11	3·33	...
Total..	3757	322	8·6	—	—	—	—	—	—

It will thus be seen that the average amount of tuberculous milk sent in by these 535 farmers is 5·79 per cent. Mr. Lock has taken particular care in the supervision of the samples collected to prevent unnecessary repetition, and if, as has sometimes happened, samples were presented which had only been taken a short time previously, these were rejected and not submitted for examination. Some small amount of duplication may occur at times owing to special requests being made by the dealers themselves for the taking of certain milks, to which they may attach some suspicion. It should also be stated that at those periods of the year, such as Spring and Autumn, when the amount of tuberculous milk sent in is greatest, the number of mixed samples taken is increased so as to detect as much of the tuberculous milk as possible. As far as possible, however, the field covered is made as extensive as possible, and from time to time lists are made out and presented to the Inspectors with instructions to obtain the milk sent in from certain farms. It often occurs that among the names included in these lists are those of

farmers who have ceased sending to the City, and it is thus possible to keep fairly accurate records of the changes which are bound to occur from time to time in a milk supply derived from such a large area. It may also be mentioned that the largest number of samples is taken in the Autumn, when the proportion of cows suffering from tuberculosis of the udder is highest.

In response to the circulars addressed to the farmers asking for particulars of the number of cows on each farm, 453 replies were received, and 82 sent no reply. The total number of cows kept on the farms of those who sent the particulars asked for was 9,020, giving an average of nearly 20 cows per farm.

On reference to Table I., the figures presented are of some interest when comparison is made with those for previous years in the same table. The fact that the percentage found to be tuberculous amongst the milks sent in during the year has been so low as 5·79 is very satisfactory, and marks a return to the steady and progressive improvement which characterised the work of the previous few years, with the exception of 1908, to the figures of which year considerable reference was made in the report appertaining. It is sufficient to say that it would appear that the statement made in the report for 1908 that the decreased number of milk samples taken was responsible to some extent for the increased percentage of disease-producing milk was correct, for the return to the more extended control is immediately attended with return to better conditions.

The decrease in the amount of tuberculous milk sent in from Cheshire is particularly notable and gratifying, and reflects very great credit upon the farmers in that county. The influence for good of the work done by the staffs of the County and Local Councils must not be lost sight of. The forward and enlightened policy of the Cheshire Milk Producers' Association in strongly urging upon their members the extreme importance of constant care and vigilant supervision of their herds is also worthy of commendation, and can only make for the ultimate benefit of the whole dairy industry. Nothing will do more to increase the consumption of milk in the towns than for the consumer to feel confidence in the article which is sent in.

From year to year more intelligent interest is being taken by the farmers in the whole question of the prevention of disease, and I am able to testify to the fact that with few exceptions most of the farmers with whom I come in contact are quite alive to the situation, and are willing to listen and to learn, if not to act immediately.

This educational section forms no small part of the work of inspection. Inspection without instruction would be practically useless. For some years I have realised how very essential it is that no trouble should be spared in

giving as much information as to the nature of the diseases met with, with particular reference to contagious diseases, their mode of spread, and their prevention.

There is no doubt that the task is at times apparently a very hopeless one, but even a little information, given in non-technical terms, is likely to be of benefit.

It is a surprising fact that, seeing how closely concerned farmers are with the legislation available for the supervision of the milk supply, only a small proportion of the individuals affected will take the trouble to read any printed matter which is sent to them. Repeatedly when visiting farms in the country districts I have questioned farmers as to whether they had made themselves acquainted with the contents of the circulars which had been sent to them, and have been informed that they remembered some papers coming, but had not troubled to read them. It should, of course, be remembered that such replies are sometimes given in furtherance of the plea that they have been entirely in ignorance of any offence having been committed. I merely refer to this aspect of the administrative work to suggest that the County Councils and other bodies concerned have still plenty of scope for extending practical information of real educational and financial value to the farmers, but such information must be of such a character as to be easily understood by the individuals interested.

I am convinced that a very great deal of the success attending the administration has been due to the fact that no trouble has been spared to render information wherever possible. The pamphlets compiled by Dr. Niven have been of the very greatest value, and have been freely utilised for this purpose.

I have referred in previous reports to the general and systematic disinfection of cowsheds, and need make no apology for referring to it again. It has been a special branch of the instruction given, and one upon which I have laid great stress. It may be of value if I refer to the experience of one farmer in this direction. For years the losses from tuberculosis had been of such magnitude as to make him fearful of attempting to rear any cattle upon his farm. Incidentally many of his cows developed tuberculosis of the udder. His buildings are bad, but his landlord will not or cannot do anything to improve them. They are kept as clean as it is humanly possible to keep such structures.

Some four years ago he decided to take my advice, and started to systematically disinfect the whole of his animal habitations, certainly not less than once in two months. From time to time he has reported progress to me, and naturally he found that he was not going to get rid of his losses all at once.

But a short time ago he stated that for the first time since he had started farming he had not lost a single animal from tuberculosis for twelve months, and he questioned me further as to whether I thought that the general disinfecting had anything to do with his comparative freedom from contagious abortion.

The experience given above is not an isolated instance by any means, and I could quote others where results almost as good have been obtained, and I am convinced that if compulsory clauses requiring efficient periodical disinfection were included in any future legislation it would be of the utmost value. Great persistence is required in the individual efforts to diminish the incidence of tuberculosis.

Included in the work of the year was the inspection of the sources of supply to a large dairy company, a great quantity of whose milk is despatched to a city other than Manchester.

It is only possible in a limited space such as is at my disposal to refer briefly to this piece of work, which was of considerable magnitude, and having been carried out in the summer months the general conditions prevailing at the farms visited were, or should have been, at their best; the results obtained are therefore all the more striking.

The summarised results of this piece of work are as follows:—The total number of farms visited was 136; of this number I found 6 to be clean, 52 were fairly clean, and 78 were dirty.

At 5 farms out of the gross total of 136 farms there was satisfactory provision for the storage of manure. At 12 other farms the provision made was of a less satisfactory character, but was nevertheless fairly good, while on the remaining 116 farms the manure stead was either entirely absent or quite unsatisfactory.

The total number of cowsheds inspected was 343; of these, 10 were clean, 147 fairly clean, and the remainder dirty.

I should here state that the standard of cleanliness expected was not such as might obtain in a well-kept dwelling-house, but such as might reasonably be required in any farm in which a reasonable amount of supervision was exercised. The figures are then all the more striking.

The lighting of 78 cowsheds was satisfactory, the remaining 265 being either badly lighted or not lighted at all. Eighty-eight cowsheds were sufficiently ventilated, the remaining 255 being badly ventilated.

The drainage of 151 cowsheds was satisfactory, while in 192 cowsheds it was not.

In 201 cowsheds the cubic area per cow was sufficient; in 142 it was inadequate. This is somewhat contrary to usual inspection results, and while it was found that the housing was very bad, there was little overcrowding.

Finally, the total number of cows examined was 3,019. The total number of cows found to be suffering from tuberculosis of the udder was 11. Of these, 7 were proved by bacteriological examination. Two were "dry" cows, in which the diagnosis was confirmed by post-mortem examination. An additional two cows were found to be suffering from undoubted tuberculosis of the udder, but no material being obtainable the diagnosis was not bacteriologically confirmed. In one of these cases a post-mortem examination was subsequently carried out, and ample evidence of marked tuberculosis was found.

The number of cows suffering from tuberculosis of the udder found in this piece of inspection work was comparatively small, but this is to a great extent accounted for by the fact that, as soon as it became known that the farms were being visited, large numbers of suspected animals were sent into the local auction market every week, and disposed of to individuals who evidently had no difficulty in disposing of this class of cattle.

The chief purchasers of these emaciated animals were four individuals who were quite well known. Prices for actual "wasters" ranged from 10s. to 35s.; in addition, there was a brisk trade in worn-out old cows at prices ranging from £2 10s. to £5 each.

On a certain Wednesday morning I watched the business carried on by one auctioneer, and took careful note of the first 17 animals sold. Of these, 14 were certainly suffering from advanced tuberculosis, 9 of them having undoubted disease of the udder. A fortnight later, of the first 15 animals sold 11 were undoubtedly tuberculous, 6 having marked tuberculosis of the udder. This is only what I saw in one auctioneer's section of the market. I should also say that what I have described took place at some considerable distance from Manchester, but it emphasises one of the points in connection with the suppression of the "slink" trade which is extremely difficult to control so long as such animals are admitted into markets and fairs without hindrance or comment. No hardship would be inflicted if such creatures, many of which can only be brought to auction by cart, and others arriving in a state of exhaustion, were peremptorily seized and condemned to slaughter by the nearest "knacker."

There can be no doubt that if the inspection only resulted in the expulsion of the diseased animals I have described from the herds, a certain amount of good would be done.

Wholesale inspections of the above character should be carried out as far as is possible in the winter months, when the cattle are housed, and it is possible to see what are the actual conditions under which cattle are living during those periods of the year when they are not at liberty. It would be possible then also to examine a much larger number in a day.

The actual number of cows found during the year to be suffering from tuberculosis of the udder was 31. Of this number, as already stated, 11 were found in connection with one supply; of these, 5 were slaughtered in my presence, the carcases all being unfit for food. The remaining 6 were disposed of otherwise.

In the remainder of the work 20 cows were found. Of these, 19 were slaughtered either in my presence or I saw the carcase soon after. In 17 cases the entire carcase was found to be unfit for food; in one case part of the carcase only was passed, and in the remaining case the entire carcase was found to be fit for food. In one case the ultimate disposal of the cow could not be ascertained, beyond the fact that she had been sold.

One farmer was prosecuted during the year for having failed to notify to the Medical Officer of Health the presence in his herd of a cow suffering from tuberculosis of the udder. A fine of 20s. and costs and £1 1s. extra costs was imposed. A prohibitionary order was also made upon the same farmer to cease sending his milk to the City, but the farmer having made arrangements to carry out the requisite alteration of the cowsheds, the order will no doubt be removed on the completion of the undertaking.

Tuberculin Test.

The complete table showing since the commencement the work of keeping a large herd free from tuberculosis, by means of the Tuberculin Test, is again inserted. The results obtained have been most satisfactory, and reflect great credit upon the farmer from whose farm the milk is supplied to the various hospitals, Monsall, Clayton, and Baguley Sanatorium.

It may be of some interest to mention the fact that since the commencement, some four years ago, of rearing stock from tuberculosis-free animals under stringent conditions, no animal so reared has re-acted to tuberculin.

J. W. Brittlebank, M.R.C.V.S., D.V.S.M.

Below is presented a table showing the actual results of each application of the test :—

TABLE II.

Date of Test	Total Number Tested	MILKING HERD. Animals having been previously tested				PROBATIONARY ANIMALS. Animals not previously tested, but purchased subject to passing the test				Total Number of Animals Passing Test
		Number Tested	Number Re-acting	Number Passed	Doubtful Re-actions	Number Tested	Number Re-acting	Number Passed	Doubtful Re-actions	
October, 1903.....	108	98	1	96	1	10	4	5	1	101
April, 1904.....	103	76	0	76	0	27	10	17	0	93
October, 1904.....	103	85	0	84	*1	18	4	13	1	97
April, 1905.....	102	87	0	87	0	15	4	11	0	98
October, 1905	98	84	0	84	0	14	5	9	0	93
April, 1906.....	107	91	0	91	0	16	6	10	0	101
October, 1906	102	73	1	72	0	28	7	21	0	94
April, 1907.....	132	95	0	95	0	27	19	8	0	103
October, 1907	119	81	0	81	0	28	13	15	0	96
April, 1908.....	122	88	0	88	0	33	25	8	0	96
October, 1908	123	91	1	90	0	32	16	16	0	107
April, 1909.....	119	88	2	86	1	31	15	16	0	101
October, 1909.....	115	93	0	93	0	22	14	8	0	107

* Animal tested, but developed Bronchitis during test.

The following table of samples submitted in connection with the Manchester Milk Clauses summarises the work of the year :—

1909.

Number of specimens of mixed milk taken at the station			623	
Number of specimens of mixed milk elsewhere			22	
Number of each found to contain tubercular infection	Station 28	Elsewhere 4		In addition, 14 control samples were taken at the stations, of which 2 were proved capable of causing Tuberculosis.
Number of farms visited in consequence			171	Additional 3 visited as result of notification or otherwise. Total visits 174.
Number of specimens taken from individual cows as result of following up station and other samples			75	And 5 mixed samples.
Number of milks from individual cows proved to be tuberculous out of those given in the preceding column			27	
Number of udders proved to contain tuberculous lesions			31	
Number of milks taken from individual cows as the result of *notification* or *otherwise* than owing to the presence of tubercle bacilli in mixed milk			2	
Number of udders in last column shown to be tuberculous by bacteriological examination			0	
Total number of specimens submitted for examination			719	

THE FACTORY AND WORKSHOP ACT, 1901.

I beg to submit a statement of work done under this Act on the Form issued by the Home Office for the year ending December 31st, 1909.

FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES, AND HOMEWORK.

1.—INSPECTION.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises	Number of		
	Inspections	Written Notices	Prosecutions
Factories (including Factory Laundries) and Bakehouses; Workshops (including Workshop Laundries) and Bakehouses; Workplaces	18355	642	7
Homeworkers' Premises	2713	26	...
Total	21068	668	7

2.—DEFECTS FOUND.

Particulars	Number of Defects			No of Prosecutions
	Found	Remedied	Referred to H.M. Inspector	
Nuisances under the Public Health Acts :—				
Want of cleanliness	69	69	...	...
Want of ventilation	49	49	...	1
Overcrowding	6	6	...	...
Want of drainage of floors	5	5	...	...
Other nuisances	190	190	...	...
Sanitary accommodation—				
Insufficient	57	13	...	...
Unsuitable or defective...	171	19	...	2
Not separate for sexes	29	1	...	...
Offences under the Factory and Workshop Act :—				
Illegal occupation of underground bakehouse (S. 101)	...	...	...	...
Breach of special sanitary requirements for bakehouses (SS. 97 to 100) ...	115	115	...	...
Failure as regard lists of outworkers (S. 107)	...	...	...	12
Giving out work to be done in premises which are unwholesome (S. 108)	...	...	...	...
Giving out work to be done in premises which are infected (S. 110) ...	8	8	...	..
Allowing wearing apparel to be made in premises infected by Scarlet Fever or Smallpox (S. 109)	5	5	...	...
Other offences (want of cleanliness, etc.)	1010	1010	...	4
Total	1714	1490	380	19

3.—Other Matters.

Class	Number
Matters notified to H.M. Inspectors of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (S. 133)	380
Action taken in matters referred by H.M. Inspectors as remediable under the Public Health Acts, but not under the Factory Act (S. 5)—	
Notified by H.M. Inspector	33
Reports (of action taken) sent to H.M. Inspectors	260
Other	227
Underground Bakehouses (S. 101) :—	
In use during 1908	57
Certificates granted { None—all cellar Bakehouses are provided with certificates.	
* In use at the end of 1909	58

Homework :—	Number of	
Lists of Outworkers (S. 107):—	Lists	Outworkers
Lists received	1003	7596
Addresses of outworkers { forwarded to other Authorities		717
Addresses of outworkers { received from other Authorities		158
Homework in unwholesome or infected premises :—	Wearing Apparel	Other
Notices prohibiting homework in unwholesome premises (S. 108)	...	...
Cases of infectious disease notified in homeworkers' premises	8	...
Orders prohibiting homework in infected premises (S. 110)	8	...

Workshops on the Register (S. 131) at the end of 1907 :—	
Workshops	4367
Bakehouses	553
Total number of Workshops on Register	4920

* Bakehouses.—The number of Cellar Bakehouses now in use is 58. They have all been reconstructed to specification. They are systematically inspected, as are all other Bakehouses, and comply with the requirements of the Factory and Workshops Acts as regards structure. The defects found as regards cleanliness, etc., are given on the tabulated statement.

HOUSING OF THE WORKING CLASSES.

The following figures show the number of new houses certified as fit for human habitation in Manchester, from November 1, 1908, to October 31, 1909, and also in the neighbouring districts during the corresponding annual periods, since November 1, 1890:—

TABLE A.—STATEMENT AS TO THE NUMBER OF NEW DWELLING-HOUSES CERTIFIED AS FIT FOR HUMAN HABITATION IN THE VARIOUS DIVISIONS OF THE CITY BETWEEN 1890 AND 1909.

DISTRICT	1st Nov., 1890, to 31st Oct., 1891	1891 to 1892	1892 to 1893	1893 to 1894	1894 to 1895	1895 to 1896	1896 to 1897	1897 to 1898	1898 to 1899	1899 to 1900	1900 to 1901	1901 to 1902	1902 to 1903	1903 to 1904	1904 to 1905	1905 to 1906	1906 to 1907	1907 to 1908	1908 to 1909	TOTALS
Ancoats	31	195	54	70	7	97	113	53	25	28	33	1	4 including 1 Lodging house	11	1	46†	13‡	39	1	822
Central.....	NOTE:—193 Artizans' Dwellings																			
St. George's ..		...	...	...	...	...	...	...	...	...	...	5	1	9	*95	...	...	...	31	334
Cheetham ...	8	38	76	97	37	155	269	370	315	128	253	171	199	240	133	186	226	101	280	3382
Crumpsall ...	17	7	18	24	44	39	37	41	18	102	53	56	82	85	57	50	60	66	44	900
Blackley	29	11	13	5	19	41	31	56	67	58	33	42	57	53	124	95	130	175	102	1141
Harpurhey ...	55	60	60	170	191	342	253	346	327	169	129	70	92	14	7	30	149	7	12	2483
Moston	22	12	74	89	148	193	225	263	248	282	179	78	109	156	222	327	481	394	436	3938
Newton	40	20	10	30	65	140	96	136	134	110	90	211	167	230	193	287	159	130	91	2339
Bradford	36	39	49	21	65	67	198	91	103	198	47	239	29	40	7	5	...	26	57	1367
Beswick	2	8	15	8	...	97	118	128	98	119	175	94	...	15	...	...	4	...	...	881
Clayton	6	61	6	9	39	111	152	161	229	234	164	104	107	113	103	113	112	112	131	2067
Ardwick	4	34	25	59	177	261	192	295	361	145	110	109	171	13	45	36	27	15	11	2090
Openshaw ...	177	169	65	15	60	69	71	152	119	182	80	190	145	155	91	84	108	97	39	2068
Gorton (West)	178	110	30	2	2	20	87	236	178	57	...	...	...	50	38	3	...	...	...	991
Rusholme and Kirk.	51	37	76	89	211	277	294	354	486	462	288	346	258 / 122	453	261 / 95	356	345 / 109	454	474 / 118	592
																			408 / 57	465
																			253 / 64	317
																				5988
C.-on-M.	26	97	97	88	18	36	46	57	1	32	48	27	12	15	5	2	1	38	56	702
Hulme	...	2	1	1	...	29	24	4	3	2	4	1	6		1	2	...	1	...	81
Moss Side ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	364	220	66	51	103	804
Withington ...	...	...	...	...	...	...	...	...	...	...	...	..	...	...	362	560	506	532	633	2593
City Totals ...	682	1093	669	777	1083	1974	2206	2743	2712	2308	1686	1744	1561	1652	2204	2500	2634	2249	2344	34971

* NOTE.—Including 64 Dwelling-houses belonging to Sanitary Committee and 1 Lodging-house at Chief Fire Station.

† Including 1 Lodging-house and 44 Tenements

‡ Including 2 Lodging-houses.

In Table B are shown corresponding figures from neighbouring districts for a series of years, the annual periods being from January 1 to December 31.

A slight appearance of revival in building presents itself in the year ending October 31, 1909, especially in Moston and Withington, but no clear improvement is evident.

It is the same as regards the outlying districts (Table B), except that in the aggregate no appearance of improvement exists.

TABLE B.—NEW HOUSES CERTIFIED IN OUTSIDE DISTRICTS FROM 1891 TO 1909.

DISTRICTS	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
Salford	..	254	564	454	613	883	872	1268	885	674	818	733	603	599	619	519	581	415	554
Eccles	141	164	109	100	118	113	165	219	202	215	215	185	244	226	323	346	218	202	231
Stretford	30	43	38	274	356	313	355	340	262	265	320	329	379	483	365	376	341	236	304
Urmston	73	45	42	34	80	102	135	88	43	18	21	24	35	106	90	50	35	40	13
Withington Urban District Council:																			
Withington, including Whalley Range	23	31	17	50	70	79	162	171	225	169	59	52	35	139	..	..	..	..	..
Didsbury	31	42	33	26	79	55	45	66	139	66	37	34	43	68	..	..	..	..	..
Burnage	..	..	26	21	..	1	24	13	1	14	14	59	1	..	..	..	..	..	..
Chorlton-cum-Hardy	81	63	10	37	94	155	182	152	55	191	220	182	247	215	..	..	..	..	..
Moss Side	..	..	..	..	..	..	..	119	35	403	400	314	157	234	..	..	..	..	..
Levenshulme	..	..	..	..	..	..	..	224	290	420	180	236	278	318	328	184	131	92	233
Droylsden	..	..	..	..	..	..	..	126	36	41	43	..	135	50	33	38	65	30	34
Gorton	..	..	..	..	..	..	..	397	411	352	353	187	402	362	391	685	519	339	149
Totals	379	632	839	996	1410	1701	1940	3183	2584	2828	2680	2335	2559	2800	2149	2198	1890	1354	1518

The operations of the Unhealthy Dwellings are summarised in the following tabl C and D :—

TABLE C.—RETURN SHOWING THE NUMBER OF HOUSES CLOSED, DEMOLISHED, O ADDED TO OTHER HOUSES, THEREBY BEING DISCONTINUED AS SEPARATE HABITA TIONS, WITHIN THE CITY, FROM FEBRUARY, 1885, TO DECEMBER 31ST, 1909 ALSO FOR 1909.

SANITARY DISTRICT		Number of Houses Closed, Demolished, or Added together or to other Houses		Number of Houses Closed which have not up to the present time been allowed to be re-opened		Number of Houses Closed which have been subsequently demolished		Number of Houses Closed and subsequently added together or to other Houses, thereby being discontinued as separate habitations		Number House certifie unfit fo human habitatio after bei visited by the Committ
		February, 1885, to Dec. 31st, 1909	1909	February, 1885, to Dec. 31st, 1909	1909	February, 1885, to Dec. 31st, 1909	1909	February, 1885, to Dec. 31st, 1909	1909	1909
Central	1	403	...	118	...	162	...	123	...	6
	2	875	1	190	1	517	...	168	...	1
	3	825	33	194	32	301	1	330	...	104
Cheetham ...	4	46	1	19	1	21	...	6	...	17
	5	8	...	2	...	4	...	2	...	...
St. George's...	6	1045	...	373	...	409	...	263	...	8
	7	473	...	173	...	227	...	73	...	44
	8	108	48	64	47	11	1	33	...	60
Ancoats	9	929	1	125	1	493	...	311	...	22
Part of Ancoats	10	606	19	39	10	346	5	221	4	145
Beswick	10	7	...	3	...	2	...	2	...	...
Ancoats	11	534	5	33	2	275	1	226	2	124
Ardwick	12	454	...	51	...	220	...	183	...	10
Part of Ardwick	13	15	...	...	...	10	...	...	...	100
Part of C-on-M.	13	27	7	6	...	8	5	18	2	79
C.-on-M. ...	14	543	10	124	3	293	5	124	2	71
	15	493	1	61	...	240	1	194	...	51
Hulme	16	46	2	6	1	31	1	9	...	569
	17	372	6	66	1	204	5	102	...	287
	18	676	26	93	26	402	...	181	...	359
Crumpsall ...	19	28	...	...	...	9	...	19	...	...
Blackley	20	23	...	7	...	14	...	2	...	...
Harpurhey ...	20	15	...	...	...	13	...	2	...	...
Moston	21	7	...	5	...	2	...	...	...	5
Newton	22	212	7	21	...	95	7	96	...	13
	23	72	...	18	...	34	...	20	...	...
Bradford	24	75	...	24	...	26	...	25	...	...
Clayton	25	31	...	20	..	1	...	10	...	2
Openshaw ...	26	76	...	45	...	19	...	12	...	6
West Gorton ..	27	24	...	2	...	12	...	10	...	92
Rusholme ...	28	78	...	7	...	31	...	40	...	6
Moss Side ...	29	...	...	...	...	...	...	...	...	1
Levenshulme	30	...	...	...	...	...	...	...	...	...
Gorton.....	31	...	...	...	...	...	...	...	...	...
Totals		9126	167	1889	125	4432	32	2805	10	2182

In the following table is seen, for each year, the rate at which Insanitary Dwellings have been closed since 1885.

TABLE D.—RETURN SHOWING THE NUMBER OF HOUSES CLOSED, DEMOLISHED, OR ADDED TO OTHER HOUSES, THEREBY BEING DISCONTINUED AS SEPARATE HABITATIONS, WITHIN THE CITY IN EACH YEAR FROM FEBRUARY, 1885, TO DECEMBER 31ST, 1909 (JANUARY TO DECEMBER IN EACH YEAR).

	Number of Houses Closed, Demolished, or Added to other Houses.	Number of Houses Closed which have not up to the present time been allowed to be re-opened.	Number of Houses Closed which have been subsequently demolished.	Number of Houses Closed and subsequently added together or to other Houses, thereby being discontinued as separate habitations
1885 (From February)	56	...	46	10
1886	103	4	71	28
1887	117	11	55	51
1888	191	15	113	63
1889	282	39	170	73
1890	165	11	75	79
1891	287	38	120	129
1892	564	56	279	229
1893	509	108	195	206
1894	782	57	511	214
1895	708	41	440	227
1896	508	48	298	162
1897	284	31	185	68
1898	296	43	154	99
1899	641	145	307	189
1900	266	44	142	80
1901	58	11	37	10
1902	346	75	119	152
1903	305	47	146	112
1904	378	84	167	127
1905	287	53	162	72
1906	213	23	100	90
1907	1068	531	336	201
1908	545	249	172	124
1909	167	125	32	10
Totals	9126	1889	4432	2805

Table D shows the number of houses closed year by year which have ceased to be used as separate dwellings, with the action taken in respect of them.

Table C shows the manner in which the operations of the Committee have been distributed over the sanitary districts of the City. It will be seen that in the year 1909 2,182 houses certified as unfit for human habitation to the Sanitary Committee were visited by the Housing Sub-Committee, with the result that the owners were for the most part requested to show cause why a closing order should not be made against them. In 2,164 cases such an order was made.

It is understood, however, that the order is not enforced if steps are promptly taken to comply with the requirements of the Committee.

Plans are prepared under the direction of Mr. Irvine, of the City Surveyor's Office, showing what alterations will be acceptable, unless the property is not deemed suitable to be altered; or the owners may themselves present plans.

The return herewith given does not show the number in which the closing order was not enforced, in consequence of such alterations. These form however by far the greater number of the houses ordered to be closed.

It will be seen that the Housing Sub-Committee continues its work with unabated vigour, and it would be difficult to over-estimate the value of the constant and unremitting attention given by the Sanitary Committee to the condition of the poorer dwellings.

The condition of houses sublet in lodgings has recently received much attention, and as the Sanitary Committee deals more and more stringently with them, the necessity will become greater to provide housing and government for the classes who live in farmed houses, or otherwise occupy houses divided up into tenements. In my opinion the use of houses in this manner might usefully be prohibited by law, except under the express sanction of the Sanitary Authority, and under definite conditions.

The alterations are directed to improving the ventilation, lighting, yard provision, closet accommodation, and structural condition of houses.

No compensation is given in respect of houses demolished. The number demolished, it will be seen, is very limited.

The greatest improvement during the year 1909 consisted in the replacement by water-closets of pail-closets and midden privies attached to dwellings. In all cases such alterations were accompanied by improvement in the yard surface, and by the reconstruction of the drainage where necessary, and in very many instances by structural alterations in the houses.

The magnitude of the work carried out will be seen from the following figures (Table E) :—

TABLE E.—NUMBER OF PAIL-CLOSETS AND MIDDEN PRIVIES ALTERED TO WATER-CLOSETS, FROM MAY 1, 1908, TO MARCH 31, 1909, AND FROM APRIL 1, 1909, TO MARCH 31, 1910 :—

	Number of Water-closets substituted for Pail-closets	Number of Water-closets substituted for Midden Privies	Total substitutions
From May 1, 1908, to March 31, 1909 ..	9,587	2,552	12,139
From April 1, 1909, to March 31, 1910 ..	11,296	1,378	12,674

Table F shows the distribution of the work done in 1909 in districts, with the closets remaining to be altered, whether pails or midden privies.

It will be seen from Table F which follows, that, with the exception of Moss Side and Gorton, the last-named newly added to the City and not given in this Table, and Withington, which is also not included here, the work of conversion from middens to water-closets is nearly complete.

This important work of conversion is distributed as much as possible so as to reduce the severity of its incidence on individual districts, as will be evident from the figures.

TABLE F.—NUMBER OF PAIL-CLOSETS AND MIDDEN PRIVIES REPLACED BY WATER-CLOSETS, FROM APRIL 1, 1909, TO MARCH 31, 1910, AND THE NUMBER STILL REMAINING TO BE ALTERED.

District		Pail-closets	Midden Privies	Total substitution	Pail-closets requiring substitution	Midden Privies requiring substitution	Total requiring substitution
Central	1	89	..	89	369	..	369
	2	55	..	55	612	..	612
	3	145	..	145	704	..	704
Cheetham	4	302	..	302	721	..	721
	5	589	..	589	555	..	555
St. George's	6	167	..	167	580	..	580
	7	953	..	953	1101	..	1101
	8	785	..	785	2026	..	2026
Ancoats	9	137	..	137	1028	..	1028
	10	444	..	444	710	..	710
Beswick	10	..	..	..	..	..	..
Ancoats	11	246	..	246	348	..	348
Ardwick	12	725	..	725	1587	..	1587
	13	1134	..	1134	1931	..	1931
C.-on-M.	13	..	..	..	..	..	..
	14	542	..	542	1649	..	1649
	15	621	..	621	1667	..	1667
Hulme	16	881	..	881	2620	..	2620
	17	678	..	678	1461	..	1461
	18	384	..	384	812	..	812
Crumpsall	19	..	8	8	3	42	45
Blackley	20	135	15	150	350	91	441
Harpurhey	20	..	..	..	..	..	..
Moston	21	15	1	16	25	..	25
Newton	22	353	12	365	75	53	128
	23	673	14	687	806	46	852
Bradford	24	648	..	648	531	..	531
Clayton	25	..	24	24	27	44	71
Openshaw	26	484	..	484	865	..	865
West Gorton	27	62	43	105	23	97	120
Rusholme	28	49	46	95	101	14	115
Moss Side	29	..	1215	1215	..	1945	1945
Totals		11296	1378	12674	23287	2332	25619

As regards Gorton and Levenshulme, the numbers of pail-closets and midden privies have not yet been ascertained.

There can be no doubt that these conversions are highly beneficial to the health of the districts in which they have been made, and may be regarded as a necessity. Not only so, but each abolition of either a pail-closet or a midden represents a saving to the public purse. In a report made to the Sanitary Committee in 1897 this aspect of the matter was mentioned. I am indebted to Mr. Stansfield, Chief Sanitary Inspector of the Sanitary Department, for the following estimate of the saving to the Corporation :—

"Regarding the matter from the standpoint of cost, in 1906 I calculated from the Cleansing Department's reports and accounts that in 1904 each pail-closet in the City cost at least £1 per annum, including the estimated cost of the removal of the domestic refuse of 6s. 6d. per house; so that for each pail-closet abolished there was a saving in the Cleansing Department's work of 13s. 6d. per pail per annum.

"From 1904 to 1908 the cost of the scavenging section of the Cleansing Department's work has increased 11·21 per cent., while during the period 1892 to 1908 the cost of the night-soiling section of their work has decreased by 13·80 per cent.; therefore, if no alteration of pails to water-closets had taken place, it may reasonably be assumed that the night-soiling section cost would have increased at the same ratio as the Scavenging Department, which would have raised the cost in 1908 from £87,582 18s. 9d. to £109,478 13s. 5d., so that the alteration shows a reduction in cost of £21,895 14s. 8d. per annum.

"From 1892 to 1908, 34,142 pails have been altered to water-closets. If this number is divided into the estimated reduction in cost, we have a saving of 12s. 9¾d. per annum per pail altered, which proves the 1904 figures.

"In 1906 I stated that if pails were abolished the saving to the Corporation would be £42,739 12s. 6d. per annum, after providing for the cost of sewage treatment and the extra cost of refuse receptacles. In that statement I took no account of the additional expenditure on water, nor of the cost of conversion. If the conversion of 34,142 pails shows a saving of £21,895 14s. 8d., the alteration of the total 78,806 pails in existence in 1892 would show a saving of over £50,000 per annum in the Cleansing Department's work. Of course from this the extra cost of sewage treatment (estimated by the City Surveyor at £3,000 per annum) would have to be deducted. These facts clearly show an estimated saving to the Corporation of nearly £43,000 per annum to be rather under the mark than over."

There are many ways of looking at the above question. But, by no additions, is the fundamental fact changed that these alterations are, as a mere pecuniary transaction, economical. When the economy in life of the citizens is considered, the annual saving is very great.

MONSALL HOSPITAL.

Report for 1909.

The daily average number of patients in the hospital during 1909 was 341·4, which is much higher than the previous year.

The net mortality is higher; this is due to the mortality in Scarlatina, that for Enteric Fever being the same as in 1908, and the Diphtheria mortality being less.

The year was chiefly remarkable for the great pressure on the accommodation for Scarlatina. This is discussed from the point of view of the hospital in another section.

The general health of the staff throughout the year was good, but I regret to have to record the deaths of two highly esteemed members of the nursing staff, one from Influenzal Pneumonia and one from Enteric Fever. Five nurses and one maid contracted Scarlatina, two nurses Enteric, and one Diphtheria. A medical officer had Diphtheria and Chickenpox.

Fifty-four applications were received for the post of Ward Sister, and 394 for Probationerships; 5 and 46 were respectively appointed. Twenty-three nurses left at the end of their two years' training, and of those 13 proceeded to training in a general hospital.

No addition to the hospital buildings has been made during the year.

ISOLATION BY THE "BARRIER" SYSTEM.

The vogue of this system appears, to judge from the medical journals, to be increasing. It has been continued here on the same lines as in the previous year, except that the screens with sheets moistened with Izal solution have been abandoned. In place of the screens a tape is run from the foot of the bed on each side to a hook on the wall about three feet from the head of the bed. Thus each barriered patient is in a bed with a sufficient space fenced off around it to allow of any necessary manipulations taking place within. The patient is fully under observation from the centre of the ward, and yet it is impossible for anyone to walk to the bedside forgetful of the prescribed precautions. The routine adopted was fully described last year. Our experience has been much the same as that of other large hospitals, which may be summarised by saying that, if necessary, all the diseases admitted could be treated on the barrier system in the same ward without infection spreading, except in the case of Chickenpox and Measles in the acute stage.

Chickenpox especially seems to have an extraordinary power of "leaping the barrier." Remembering that the system is based on the belief that, with sufficient ward space, infection is only carried by hands, utensils, or other solid objects, it is interesting to notice that the most conspicuous failure is with a disease presenting considerable resemblance to Smallpox, which is believed by many to be capable of aerial convection.

To avoid misunderstanding, I should state that barriered cases in a ward involve extra work on the nursing staff, and, therefore, an increase in the nursing staff if there are many such cases. There is no doubt that if the rules are properly observed it takes longer to attend a barriered patient than another. The convenience of the system lies in the fact that one or two cases can be isolated for a short time without extra nurses, and that if several cases are isolated the increase in the nursing staff is not so great as it would be if several cases had to be placed in separate isolation wards. In addition, the nursing of the barriered patients can be supervised by a ward sister. There is also of course a saving in maintenance, as the isolation wards can be kept closed for longer periods.

The use of barriers in nursing septic cases of Scarlatina has been adopted in the worst cases.

SCARLATINA.

The most remarkable feature of the year in the hospital was the great pressure on the accommodation for Scarlatina. For many weeks together the hospital was quite full. The mortality was high, 5·7 per cent. Apart from the fact that the mortality usually rises in epidemics, I attribute this increase in the hospital rate to the selection of the more urgent cases for removal. It was considered wise to maintain the cubic space per bed at the normal allowance, and accordingly to limit the reception of cases.

The percentage of septic complications such as Otorrhœa and Rhinorrhœa in convalescence is naturally also higher. Otorrhœa is distinguished from the other complications of diseases by the comparative ease with which its occurrence is determined, and, therefore, the figures of different years and various hospitals are fairly comparable. As complications are at present recorded, the figures for Albuminuria, Adenitis, etc., represent the bias of the observer rather than anything else. To record a trace of albumen noted once during the disease as Albuminuria may be accurate, but is not of any value unless other observers are using the same definition and are testing the urine at the same interval.

Only one case of Post-Scarlatinal Diphtheria occurred during the year, which gives a percentage of ·05, the lowest yet recorded here. The frequent bacteriological examination on admission of suspicious cases is one factor in producing this result, but of course much must depend on the nursing arrangements.

Return Cases of Scarlatina.

The percentage of return cases was lower, the number of alleged originating cases being 105, or 5·68 per cent. According to the system adopted, this is the extreme number of the cases discharged which can be credited with infecting others. It is of course certain that the true figure is less. Twenty-five of the secondary cases occurred over three weeks after the discharge of the alleged originating case, and when such an extensive epidemic is in course it is highly probable that some of the "secondary" cases were infected from some other source. Five of the "originating" cases had no discoverable signs of Scarlatina during the stay in hospital.

In considering the question of return cases of Scarlatina, I can find only one fact on which all authorities are agreed, which is that a varying percentage of the cases are discharged in an infectious state. Many appear to believe that the patient is more highly infective on discharge than on admission. I have seen no evidence to support that, and it is difficult to conceive any theoretical reasons, with one exception, to account for it. If the discharged patient is infective, it arises from the number and virulence of the specific micro-organisms which he carries, and the frequency with which he gives them off to his environment. I can see no reason for believing that the association of patients together may increase the virulence of the specific organism. If complications should be proved to be caused by secondary infections, then the aggregation of cases might, with careless nursing, raise the percentage of complications. This, however, should not affect the primary infective agent in cases where no complications have arisen. The analogy of the increasing of the virulence of bacteria by passage through animals in succession appears to me false, because for its success there must be ready growth of the bacteria and a reaction on the part of the animal. There is no evidence in the majority of the alleged originating cases of any such process having occurred. It is, of course, possible that a patient infected with Scarlatina may sometimes pass on the organism with an increased virulence in the next case, but this is quite apart from the suggested hospital increase of virulence, which would have to result from the reception by another patient without reaction of an organism more highly virulent than that causing the primary attack. It has been suggested that more than one disease is isolated under the name of Scarlatina. This of course is possible, and if true might account for some return cases,

for the patient, having been removed from a house where his presence had exposed others to one disease, which they either avoided or resisted, might return and expose them to the risk of infection by the other. Thus those who might have resisted the first by a natural immunity might fall to the second. If this were true a number of the alleged originating cases should show signs of having received a secondary infection during the stay in hospital. I only had the opportunity of observing the discharged cases during practically the second half of the year. The figures for this period are as follows: 953 were discharged, and of these 46 possibly gave rise to cases on return home. This would give the highest possible figure as 4·8 per cent.

Of these, however, one was over nine weeks and others were over six weeks after discharge, and several of the alleged originating cases showed no symptoms of the disease during the stay in hospital. The really probable return case figure is 3·9 per cent., and I have been through the temperature charts and the notes of these cases to discover how many of them showed any signs of "relapses" or later infections. None of them had definite second attacks, but 3 of the 38 had what is usually described as a "late Tonsillitis." It is evident that the majority of originating cases neither contract a second disease, which hypothetically may exist, nor do they show any febrile reaction after the primary attack. As to the late Tonsillitis I doubt whether it is a phenomenon of hospital segregation. It is not common, and yet I have seen it occur in a case which was throughout the stay in hospital completely isolated in a special ward.

Of the 46 possible originating cases, 10 had Otorrhœa during the stay in hospital. This is 21·7 per cent. as compared with 17·2 per cent. on all the cases treated throughout the year. Sore noses or nasal discharge occurred in 8 of the cases at some time or other after discharge. As in 3 of the cases there was both Otorrhœa and later nasal discharge, this gives 15 of the discharged cases showing signs which are usually considered suspicious of infective power, but leaves 31 alleged originating cases apparently quite clear.

DIPHTHERIA.

The accommodation for this disease was so heavily taxed that for a time one of the other large wards had to be used.

Three hundred and twenty-two cases were admitted, or 55 more than in the previous year. The mortality was a little lower, 18·3 per cent., but this is still much too high. This is probably due to the disinclination of the parents

to consult a doctor for what they consider a slight sore throat in a child, and indeed it is unfortunate that the disease is not one which causes in the early stage much inconvenience to the patient.

Tracheotomy was performed in 100 cases, with a mortality of 29.

Unless the average number of admissions decreases some further accommodation for Diphtheria will be necessary. At present some small ward is nearly always being used for an overflow of patients from the Diphtheria Ward.

If the accommodation for Scarlatina be increased, perhaps some readjustment of the distribution of the diseases may meet the difficulty.

ENTERIC FEVER.

Two hundred and sixty-five cases of Enteric Fever were admitted. The mortality was 16·9 per cent. It is certainly curious that there should be so few return cases of this disease. It is now certain that many return home excreting the Bac. Typhosus in the fæces, and sometimes in the urine. The bacteriological process of identifying this organism in the fæces is at present too laborious to use with each patient before discharge. In any case the excretion of the bacilli is known to be intermittent, and therefore might easily be missed. Lastly there is the problem of those patients who for many months after complete convalescence continue to pass the bacilli.

At present one is guided by clinical observations alone in the discharge of these patients, and it is fortunate that quite ordinary precautions should prevent an intelligent "carrier" from infecting food supplies.

OTHER DISEASES.

This division includes diseases other than those usually admitted, such as Typhus, or such as Measles, taken here for the convenience of schools or hospitals, and it also includes cases sent in wrongly diagnosed as one of the notifiable diseases. There were 198 cases, with a mortality of 9·6 per cent.

PUERPERAL FEVER.

The number was less than last year. Fifty-four cases were admitted, with a mortality of 27 per cent. With a considerable number of the cases the infants were also admitted.

HOSPITAL LABORATORY REPORT.

The number of cultures from throats and noses of patients examined during 1909 was 7,423. In 253, bacteria morphologically indistinguishable from the Bac. Diphtheriæ were found. It should be explained that the nose and throat of each Scarlatina patient is swabbed before discharge, and in addition swabs are frequently taken from Scarlatina patients on admission if the appearance of the throat suggests a coexistent infection.

One or more Widal reactions were tried in each patient admitted as suffering from Enteric Fever.

Owing to the pressure of ward work no research was completed during the year.

MILES B. ARNOLD.

MONSALL HOSPITAL.

STATISTICAL REPORT FOR THE YEAR 1909.

Remaining in Hospital on January 1st, 1909	372
Patients admitted during 1909	2,853
	3,225
Cured and died during 1909	2,862
Remaining in Hospital on December 31st, 1909.. ..	363
	3,225
Total number of deaths during 1909	252
Net mortality	8·8%
Of the deaths, 52 occurred within 48 hours of admission	20·63%
Daily average number of patients	341·4
Daily average number of officers, nurses, and servants	176·3
Average stay of patients (in days)	42·9

Table showing Monthly Distribution of Diseases throughout the Year.

Discharges and Deaths.

1909	Scarlatina	Diphtheria	Enteric Fever	Erysipelas	Puerperal Fever	Other Diseases	Total
January	188	27	45	6	10	26	302
February	137	24	26	1	5	22	215
March	161	44	42	7	3	24	281
April	180	38	31	2	4	17	272
May	146	22	19	7	3	12	209
June	146	30	11	6	5	11	209
July	148	24	19	5	5	24	225
August	179	24	11	7	2	26	249
September..	164	15	10	4	5	15	213
October	203	20	17	8	3	9	260
November..	170	32	22	2	8	6	240
December	138	22	12	5	4	6	187
Total	*1960	†322	‡265	60	57	198	2862

*Of these, 2 had Scarlatina and Measles
,, 1 ,, ,, ,, Tuberculosis
,, 1 ,, ,, ,, Pertussis
,, 1 ,, ,, ,, Typhus
,, 1 ,, ,, ,, Burns
,, 1 ,, ,, ,, Pneumonia
,, 1 ,, ,, ,, Diphtheria

†Of these, 5 had Diphtheria and Scarlatina
,, 5 ,, ,, ,, Measles
,, 1 ,, ,, ,, Chickenpox
,, 1 ,, ,, ,, Status Thymicus

‡Of these, 1 had Enteric Fever and General Tuberculosis

} Co-existent.

Table showing Numbers of Various Diseases treated.

Disease	Remaining in Hospital, Jan. 1st, 1909	Admitted during 1909	Discharges and Deaths during 1909	Remaining in Hospital, Dec. 31st, 1909
Scarlatina	279	1981	1960	300
Diphtheria	19	332	322	29
Enteric Fever.....	47	236	265	18
Erysipelas	3	57	60	0
Puerperal Fever.....	10	54	57	7
Other Diseases	14	193	198	9
Total.....	372	2853	2862	363

Case Mortality Per Cent.

Year.	Scarlatina.	Diphtheria	Enteric fever.	All diseases
1903	4·7	18·4	19·2	8·5
1904	3·3	16·3	14·1	6·5
1905	3·6	19·9	15·1	8·4
1906	4·5	19·3	18·1	8·2
1907	4·5	17·2	10·2	7·4
1908	3·8	19·5	16·8	7·5
1909	5·7	18·3	16·9	8·8

Scarlatina.

Age of Patients	MALE			FEMALE			TOTAL		
	Cases	Died	Mortality per cent.	Cases	Died	Mortality per cent.	Cases	Died	Mortality per cent
Under one year ...	8	1	12·5	5	...	...	13	1	7·7
1 to 2 years ...	35	8	22·8	25	7	28·0	60	15	25·0
2 to 3 ,, ...	51	5	9·8	63	7	11·1	114	12	1·1
3 to 4 ,, ...	67	8	11·9	93	14	15·05	160	22	1·5
4 to 5 ,, ...	94	13	13·7	118	12	10·1	212	25	1·2
5 to 10 ,, ...	385	18	4·7	420	10	2·3	805	28	3·5
10 to 15 ,, ...	180	3	1·6	174	1	0·5	354	4	1·1
15 to 20 ,, ...	63	1	1·5	53	...	...	116	1	0 8
20 to 25 ,, ...	23	...	...	40	...	...	63	...	...
25 to 30 ,, ...	13	2	15·3	20	2	10·0	33	4	12·1
Over 30 ,, ...	16	1	6·2	14	...	...	30	1	3·3
Total	935	60	6·4	1025	53	5·1	1960	113	5·7

Of the deaths, two were complicated by other co-existent diseases; 13 deaths occurred within 48 hours of admission.

Percentage Complications in Scarlet Fever, 1909.

Complication	Number	Percentage
Otorrhœa	338	17·2
Rhinorrhœa of Convalescence..	109	5·5
Nephritis	31	1·6
Albuminuria	62	3·2
Endocarditis	12	0·6
Adenitis of Convalescence	69	3·5

SCARLATINA—*continued*

YEAR	No. of Scarlatinal Discharges and Deaths	No. of Cases of Post Scarlatinal Diphtheria	Case Percentage	Died
1901	2669	104	3·90	3
1902	2018	29	1·43	1
1903	1877	8	0·42	2
1904	1560	7	0·45	0
1905	1499	13	0·90	0
1906	1897	10	0·53	1
1907	1548	1	0·06	0
1908	1763	2	0·11	0
1909	1960	1	0·05	0

DIPHTHERIA.

AGE OF PATIENTS	MALE			FEMALE			TOTAL		
	Cases	Died	Mortality per cent.	Cases	Died	Mortality per cent.	Cases	Died	Mortality per cent
Under 1 year ...	3	1	33·3	4	2	50·0	7	3	4·3
1 to 2 years ...	20	3	15·0	16	8	50·0	36	11	3·1
2 ,, 3 ,, ..	23	5	21·7	18	4	22·2	41	9	2·2
3 ,, 4 ,, ...	25	6	24·0	22	7	31·8	47	13	27·1
4 ,, 5 ,, ...	29	6	20·6	22	4	18·1	51	10	19·6
5 ,, 10 ,, ...	47	6	12·7	53	5	9·4	100	11	11·0
10 ,, 15 ,, ...	4	...	...	8	1	12·5	12	1	8·3
15 ,, 20 ,, ...	1	...	...	5	1	20·0	6	1	16·6
20 ,, 25 ,, ...	1	...	...	4	...	...	5	...	...
25 ,, 30 ,, ...	...	...	...	5	...	...	5	..	...
Over 30 ,, ...	2	...	...	10	...	...	12	...	...
Total	155	27	17·4	167	32	19·1	322	59	18·3

22 deaths occurred within 48 hours of admission.

Of the deaths, four were complicated by other co-existent diseases.

All patients with Diphtheria, and also all those suffering from Scarlet Fever, were examined for Diphtheria bacilli before being discharged from the Hospital.

Diphtheria.

Table showing interval elapsing between Date when the Patient was first seen by a Medical Man and the Date of Admission to Hospital, also showing Day of Disease on Admission.

Days' interval	Interval between admission and date when patient was first seen by a Medical Attendant		Day of disease on admission	Day of disease on admission	
	All Cases	Deaths		All Cases	Deaths
Sent in on the same day	88	22	Sent in on the same day	12	2
1 day interval	73	15	2rd day.....	62	13
2 days' ,, ...	29	7	3rd ,, ...	45	14
3 ,, ,, ...	40	2	4th ,, ...	53	13
4 ,, ,, ...	27	4	5th ,, ...	51	8
5 ,, ,, ...	10	0	6th ,, ...	22	3
6 ,, ,, ...	10	0	7th ,, ...	19	1
7 ,, ,, ...	9	0	8th ,, ...	20	0
8 ,, ,, ...	2	0	9th ,, ...	6	0
9 ,, ,, ...	5	1	10th ,, ...	8	2
10 ,, ,, ...	3	0	Over 10th day ...	17	1
Over 10 days' interval	6	1	No information ..	7	2
No information	20	7			
Total	322	59	Total	322	59

Complications in Diphtheria.

Complication	Number of Cases	Percentage
Otorrhœa	5	1·5
Rhinorrhœa	...	...
All forms of Paralysis	22	6·8
Cardiac Paralysis alone	9	2·8
Palate alone	7	2 1
Diaphragm alone	3	0·9
Other Paralysis	3	0·9
Hæmorrhagic Diphtheria	1	0·3
Adenitis of Convalescence	1	0.3

Tracheotomy Cases.

Age of Patients	No. of Patients	Died	Mortality per cent.
Under 1 year	3	2	66·6
1 to 2 years	22	7	31·8
2 ,, 3 ,, ...	17	5	29·4
3 ,, 4 ,, ...	18	6	33·3
4 ,, 5 ,, ...	14	3	21·4
5 ,, 10 ,, ...	25	5	20·0
10 ,, 15 ,, ...	1	1	100·0
15 ,, 20 ,, ...	...	...	...
Total	100	29	29·0

Of these, 11 died within 48 hours of admission.

Enteric Fever.

Age of Patients	MALE			FEMALE			TOTAL		
	Cases	Died	Mortality per cent.	Cases	Died	Mortality per cent.	Cases	Died	Mortality per cent
Under one year ...	...	...	...	...	...	...	...	...	...
1 to 2 years ...	...	...	...	...	...	..	...	...	...
2 to 3 ,, ...	2	1	50·0	2	1	50·0	4	2	50·0
3 to 4 ,, ...	...	...	...	4	...	...	4	...	...
4 to 5 ,, ...	1	...	...	2	...	...	3	...	...
5 to 10 ,, ..	21	2	9·5	12	1	8·3	33	3	9·1
10 to 15 ,, ..	23	1	4·3	19	1	5·2	42	2	4·7
15 to 20 ,, ...	22	2	9·1	15	3	20·0	37	5	13·5
20 to 25 ,, ...	26	2	7·7	12	2	16·6	38	4	10·5
25 to 30 ,, ...	22	2	9·1	11	2	18·2	33	4	12·1
30 to 35 ,, ...	19	6	31·5	7	2	28·5	26	8	30·7
35 to 40 ,, ..	11	3	27·2	8	2	25·0	19	5	26·3
40 to 45 ,, ...	5	2	40·0	7	3	42·8	12	5	41·6
45 to 50 ,, ...	5	3	60·0	4	...	...	9	3	33·3
Over 50 ,, ...	3	3	100·0	2	1	50·0	5	4	80·c
Total.....	160	27	16·8	105	18	17·1	265	45	16·98

Of the deaths, 6 occurred within 48 hours of admission One death was complicated by another co-existent disease.

Percentage of Complications in Enteric Fever.

Complication	Number of Cases.	Percentage	Complication	Number of Cases.	Percentage
Pneumonia	2	0·7	Intestinal Hæmorrhage	11	4·2
Relapse	*7	2·6	Perforation	4	1·5

* In 2 cases there were two and three relapses respectively.

Enteric Fever.

Table showing Interval elapsing between Date when Patient was first seen by a Medical Man and the Date of Admission to Hospital, also showing Day of Disease on Admission.

Days' Interval	Interval between admission and date when Patient was first seen by a Medical Attendant		Day of disease on admission	Day of disease on admission	
	All Cases	Deaths		All Cases	Deaths
Sent in on same day ..	3	1	Admitted same day ...	...	...
1 day interval ..	2	.	2nd day	1	1
2 days' ,, ...	9	1	3rd ,, ...	1	...
3 ,, ,, ...	10	...	4th ,, ...	2	...
4 ,, ,, ...	18	4	5th ,, ...	3	...
5 ,, ,, ...	22	1	6th , ...	6	...
6 ,, ,, ...	20	2	7th ,, ...	15	4
7 ,, ,, ...	16	4	8th ,, ...	11	2
8 ,, ,, ...	15	2	9th ,, ...	18	2
9 ,, ,, ...	18	3	10th ,, ...	15	1
10 ,, ,, ...	11	2	Over 10 days ...	183	33
Over 10 days' interval	81	14	No information ..	0	2
No information ...	40	11			
Total	265	45	.....	265	45

Other Diseases.

Certified as	Actual Disease	No.	Certified as	Actual Disease	No.
Scarlatina	Tonsillitis	64	Enteric Fever..	Pneumonia ...	3
,, ...	Nil	22	,, ...	Constipation ...	1
,, ...	Erythema	16	,, ..	Hæmorrhoids ..	1
,, ...	Rötheln	5	,, ...	Meningitis	1
,, ...	Febricula	3	,, ..	Paratyphoid ...	1
,, ...	Pneumonia ...	3	,, ...	Tonsillitis	1
,, ...	Chicken Pox...	2			
,, ...	Measles	2	Erysipelas ...	Cellulitis	2
,, ...	Rubella	2	,, ...	Boils in Scalp ..	1
,, ...	Adenitis.....	1	,, ..	DachryoCystitis	1
,, ...	Eczema	1	,, ...	Septicæmia ...	1
,, ...	Otitis	1			
,, ...	Phthisis	1	Puerperal	Endocarditis ...	1
,, ...	Rheumatism ...	1	Fever ...	Morbus Cordis.	1
,, ...	Varicella and		,, ...	Splenic Anæmia	1
	Burns.....	1	,, ...	Tuberculosis ...	1
,, ...	Whooping				
	Cough	1	Typhus	Typhus	20
			,, ...	Nil	1
			Measles	Measles	6
Diphtheria ...	Tonsillitis	12	,, ...	Papular Rash...	1
,, ...	Measles	7			
,, ...	Laryngismus		"?"	Pneumonia ...	1
	Stridulus	3			
,, ...	Perichondritis		"With Mother"	Congenital	
	Laryngis.....	1		Asthma	1
,,	Pneumonia ...	1	,, ...	Marasmus	1

Total of other Diseases, 198.

In the other diseases there were 19 deaths, eight of which occurred within 48 hours of admission. Total mortality of other diseases, 9·6 per cent.

Particulars of Return Cases of Scarlet Fever.

Number of alleged originating cases 105*

Ditto return cases 113

Alleged originating case percentage of Scarlet Fever patients Discharged .....5·68

Alleged return case percentage of Scarlet Fever patients Discharged.....6·12

* Of these 5 had no signs of Scarlet Fever during their stay in Hospital.

Table A.

Showing duration of stay in Hospital of Originating Case.

Time	No. of Cases
Under 4 weeks	5
4 to 5 ,, ...	12
5 to 6 ,, ...	43
6 to 7 ,, ...	20
7 to 8 ,, ...	7
8 to 9 ,, ...	3
9 to 10 ,, ...	4
10 to 11 ,, ...	2
11 to 12 ,, ...	3
Over 12 ,, ...	6
Total	105

Table B.

Showing Condition of Originating Case both On and After Discharge.

Condition on Discharge.

Nothing abnormal	102
Otorrhœa	2
Rhinorrhœa	1
	105

Condition after Discharge.

Nothing abnormal	60
Otorrhœa	10
Rhinorrhœa	25
Otorrhœa and Rhinorrhœa co-existent	4
Peeling.....	6
	105

Table C.

Showing Interval Elapsing between Discharge of Original Case and Onset of Secondary Case.

Time	No. of Cases
Under 48 hours	2
2 to 3 days	5
3 to 4 „	6
4 to 5 „	7
5 to 6 „	8
6 to 7 „	8
7 to 14 „	40
14 to 21 „	12
21 to 28 „	16
28 to 35 „	3
Over 5 weeks	5
Period doubtful.....	1
Total	113

Table D.

Showing interval between the Discharge of the 105 alleged Originating Cases and 105 alleged Secondary Cases respectively, and the percentage of Scarlet Fever Patients Discharged.

Time	No. of Cases	Percentage of Scarlet Fever Patients Discharged
Up to 14 days	74	4·006
14 to 28 days..	22	1·191
Over 28 days	9	0·487
Total..	105	5·684

Note.—Where more than one case is said to have originated from a discharged case, the date is taken from the first.

BAGULEY SANATORIUM FOR INFECTIOUS DISEASES.

By Dr. T. Basil Rhodes, Medical Superintendent.

Annual Report—Year 1909.

During the year ending December 31st, 1909, 745 patients were under treatment in this hospital; of these, 89 remained in hospital on January 1st, 1909, and 656 were admitted during the year. The following tables show the distribution of these cases according to the disease from which each suffered, and the district from which each came, and give, in tabulated form, the result of the treatment that they received here. The report will follow the lines of my previous reports for the years 1904, 1905, 1906, 1907, and 1908, and will be useful for comparison with them, and for calculations in conjunction with them. Seeing, however, that this will be the last report on this hospital's work which I shall have the pleasure of submitting before I leave to take up my new duties elsewhere, I have added one table at the end of this report showing the various fatality rates occurring in the hospital during the six years that I have been its Medical Superintendent.

The hospital has been kept very busy during the year, the total number of cases admitted in the twelve months, namely, 656, being a record since the opening of the hospital. The average number of patients under treatment daily in the hospital has been almost 95; the average for 1908 was 75. Partly as a result of this, and partly, I hope, as a result of very great efforts made in the cause of economy, I am able to bring to your notice a distinct reduction in the average cost of treatment for each patient.

	£ s. d.
The total expenditure for the 9 months ending November 30th, 1909, was..	6,225 2 0
Average number of patients in hospital each day	94·84
	£ s. d.
Average cost per head per day—patients only ..	0 4 9·28
Average cost per head per week—patients only..	1 13 4·96
	£ s. d.
Total alimentary expenses for the 9 months ending November 30th, 1909	1,682 2 11
Cost per head per day—patients only..	0 1 2·98
Cost per head per week (patients only)	0 8 8·86

In regard to alimentary expenses alone this is a reduction of about 3½d. per head per day, or 2s. per head per week. The total cost per head per week (patients only) for the year ending March 31st, 1909, was £1 19s., and this itself was a reduction on previous years. The last 9 months show an average weekly reduction of 5s. 7d. per patient.

A further cause for congratulation is to be found in the fact that, although the receipts from local authorities for the maintenance of patients, etc., were estimated for the 12 months ending March 31st, 1910, at £3,700, an advance of £1,000 on the estimated receipts, and of £350 on the actual receipts for the previous year, we are able to record that at the end of 9 months of the financial year the total estimate of £3,700 has been exceeded by over £300. And I think that it may be claimed for the hospital that this great increase in receipts is partially due to the increasing popularity of the hospital, and the confidence amongst the public that their children and others will be well and carefully attended to and treated.

Before proceeding to the statistical portion of this report it would perhaps be well to make a short summary of some of the more important matters in connection with the condition of the institution.

Last year saw the completion of the full round of external painting of the hospital buildings. This occupied four years. I venture to suggest that it would be well not to delay too long before commencing the round again; for, although the atmosphere of this district is very clear, the buildings stand on high ground and are very much exposed to the prevailing south-west winds. Whether it is that these winds, coming over a salt district, pick up salt on the way I do not know, but I am convinced that the atmosphere is somewhat "salty" here, and while this helps to make the situation extremely healthy and the air invigorating, it does, I think, tend to the destruction of paint and the consequent risk of ruin to the wood and ironwork of the buildings.

For some considerable time the Sewage Disposal Plant has been failing to do its work properly, although the resulting effluent has never up to the present been such as to cause any risk of an epidemic of disease.

The work of setting this to rights has already begun, and on the advice of experts a pair of soap-intercepting tanks have been built, and the soap is to some extent precipitated by lime before the effluent from the laundry reaches the septic tank. Already a marked improvement has shown itself in the amount of solid matter passing out from the septic tank to the contact beds.

The work of building a lagoon for emptying the septic tank is now (January 25th, 1910) proceeding, and it is hoped to have the septic tank completely cleaned out by the middle of March. There will then remain only the contact beds to be dealt with, and the question of the total cost of completing that work will depend to a great extent on the amount of new contact material it may be found necessary to get.

Fatality Percentage.

The fatality percentage on all cases whose treatment was concluded during 1909 was 2·27. This figure is lower than that for any other year since the hospital opened, excepting 1907, when the percentage was 1·09.

The percentage fatality amongst cases of Scarlet Fever during 1909 was 1·74. In view of the fact that the type of Scarlet Fever seen at this hospital during the last 12 months has been distinctly more severe than it has been for some years, this fatality percentage may be regarded as very low.

The percentage fatality of cases of Diphtheria during 1909 was 4·41.

The following tables give a general review of all cases treated during 1909 :—

LIST A.—*All cases—Present in Hospital on January 1st, 1909, and admitted, discharged, or died during 1909, and remaining in Hospital on January 1st, 1910.*

DISTRICT	Cases in Hospital on Jan. 1st, 1909	Admitted	Discharged	Died	Remaining in Hospital on Jan. 1st, 1910	Total Cases treated	Death-rate per cent. on discharges and deaths
Withington	12	175	162	5	20	187	2·99
Levenshulme ...	10	48	48	1	9	58	2 04
Bucklow	35	212	215	4	28	247	1·82
Other Districts... (Cheadle, Bowdon)	2	18	20	0	0	20	...
Private	0	5	5	0	0	5	...
Manchester	30	198	193	5	30	228	2·52
Totals	89	656	643	15	87	745	2·27

LIST B.—*All cases admitted during 1909—Divided according to their diagnosis and the districts from which they came.*

DISTRICT	Scarlet Fever	Diphtheria	Cases sent in as one disease found on admission to be suffering from another	Cases found on admission to be suffering from two or more diseases—mixed infections	Totals
Withington	131	39	6	0	176
Levenshulme	42	4	1	0	47
Bucklow	187	17	6	2	212
Other Districts	17	1	0	0	18
Private Cases	5	0	0	0	5
Manchester (Including Moss Side)	194	1	3	0	198
Totals	576	62	16	2	656

SCARLET FEVER.

During the year 585 cases of Scarlet Fever were admitted, which, with 83 cases remaining in hospital on January 1st, 1909, made a total of 668 cases of Scarlet Fever under treatment.

LIST C.—*Scarlet Fever only.*

District	Cases in Hospital on Jan. 1st, 1909	Admitted 1909	Discharged	Died	Cases in Hospital on Jan. 1st, 1910	Total Cases treated	Death Rate per cent. on all cases discharged
Withington ...	10	135	123	3	19	145	2·38
Levenshulme...	10	43	43	1	9	53	2·27
Bucklow	32	190	195	1	26	222	0·51
Other Districts.	2	17	19	0	0	19	...
Private Cases...	0	5	5	0	0	5	...
Manchester ...	29	195	189	5	30	224	2·57
Totals	83	585	574	10	84	668	1·71

Percentage fatality—1904—3·20.
,, ,, —1905—3·88.
,, ,, —1906—2·39.
,, ,, —1907—0·70.
,, ,, —1908—1·86.
,, ,, —1909—1·71.

RETURN CASES.

Eighteen cases discharged from this hospital in 1909, after having had Scarlet Fever, apparently gave rise to "Return Cases" of that disease.

The total number of cases discharged was 574, showing a percentage of 3·13 that caused "Return Cases."

An analysis of the causes of these "Return Cases" shows that—

In 10 cases the seat of infection was in all probability the nostrils; in some cases a definite recrudescence of the nasal discharge was observed.

In 1 case, Otorrhœa started four days after the child left the hospital. There had been no Otorrhœa nor any other complication during the child's stay in hospital of 46 days.

In 7 cases no cause could be found in the cases sent out from the hospital to account for what appeared to be undoubted "Return Cases."

My opinion is that absolute prevention of "Return Cases" is practically impossible, but my experience, like that of many others, is that the crux of the matter is the condition of the posterier nares. This can only be judged from the appearance of the mucous membrane of the nostrils, the presence or absence of nasal discharge either on douching or independently of douching, and the redness or otherwise of the soft palate and pharynx, and I am of opinion that these are the parts that require the greatest attention. I am not of opinion that length of stay in hospital increases the chances of a "Return Case" being caused.

DIPHTHERIA.

The following table will give a summary of the cases of Diphtheria treated in Baguley Sanatorium during 1909.

My further experience of the use of supra-renal extract with a view to preventing the occurrence of paralysis in Diphtheria cases leads me to think that this drug is of some value, and I should like to hear of someone making an extensive trial of it.

LIST D.—*Diphtheria.*

District	Cases in Hospital on January 1st, 1909	Admitted 1909	Discharged	Died	Remaining in Hospital on January 1st, 1910	Fatality Percentage
Withington	2	38	37	2	1	5·12
Levenshulme	0	5	5	0	0	...
Bucklow	3	18	18	1	2	5·26
Other Districts	0	1.	1	0	0	...
Private	0	0	0	0	0	...
Manchester ..... (Including Moss Side)	1	1	2	0	0	...
Totals	6	63	63	3	3	4·54

STAY IN HOSPITAL.

The average duration of stay in hospital remains at about the same figure as far as Scarlet Fever cases are concerned as in previous years.

	Average Stay—In days.					
	1904.	1905.	1906.	1907.	1908.	1909.
Cases of Scarlet Fever	58·5	59·74	57·23	55·50	57·54	55·16
Cases of Diphtheria..	60·2	60·46	44·83	54·37	44·70	45·87
All cases	58·75	55·78	53·62	54·85	54·03	52·66

Details of the average stay in hospital of all cases, divided according to their districts and the disease from which each suffered, will be found in List E.

LIST E.—*Average stay in hospital in days. All cases discharged or who have died during 1909.*

District	DISCHARGED								Deaths—all Diseases		Total average stay in hospital in days	
	Scarlet Fever		Diphtheria		Double Infections		Altered Diagnosis					
	Cases	Average stay Days	Cases	Average stay Days	Cases	Average stay Days	Cases	Average stay Days	Number	Average length of life in Hospital	Cases	Average stay
Withington	119	53·64	38	45·42	0	.....	6	31·5	5	16·20	168	49·88
Levenshulme	41	57·34	4	53·75	0	.....	1	33	1	5	47	55·40
Bucklow	193	54·92	17	44·05	2 admitted, both died		6	32	5	9·5	221	52·35
Other Districts	19	56·78	1	47	0	.....	0	.....	0	.....	20	56·30
Private Cases	5	52	0	.....	0	.....	0	.....	0	.....	5	52
Manchester (Including Moss Side)	188	55·81	2	53·5	0	.....	3	27	5	15	198	54·33
Totals	565	55·16	62	45·87	0	.....	16	30·93	16	12·43	659	52·66

The following tables will show the fatality percentages and the average length of stay in hospital of cases from Manchester (including Moss Side) as compared with cases from all the other districts from which this hospital receives patients.

		Manchester, including Moss Side	Remaining Districts, including Withington, Levenshulme, Bucklow, Bowdon, Cheadle, etc.	Total
Fatality Percentage—all cases	1906	4·34%	3·92%	4·1%
	1907	0·91%	1·24%	1·08%
	1908	2·05%	4·52%	3·34%
	1909	2·52%	2·20%	2·27%
Fatality Percentage—Scarlet Fever only	1906	4·09%	0·61%	2·39%
	1907	0·91%	0·95%	0·70%
	1908	1·68%	2·07%	1·86%
	1909	2·57%	1·07%	1·71%
Stay in Hospital in days—all cases	1906	53·83	53·53	53·62
	1907	54·46	55·20	54·85
	1908	56·04	52·18	54·03
	1909	54·33	51·95	52·66
Stay in Hospital in days—Scarlet Fever only	1906	57·06	57·40	57·23
	1907	54·59	56·44	55·50
	1908	57·48	57·62	57·54
	1909	55·81	57·46	55·16
Number of originating cases causing "Return" Cases (S. F.)	1906	7	7	14
	1907	7	3	10
	1908	9	4	13
	1909	7	11	18
Percentage of above originating cases on all cases discharged	1906	4·26%	4·32%	4·29%
	1907	3·27%	1·44%	2·37%
	1908	3·86%	2·11%	3·08%
	1909	3·70%	3·45%	3·13%

It will thus be seen that the results obtained here have been practically the same in the case of patients from either the more open residential parts (such as Withington), the rural districts (such as those known as Bucklow districts), or the more crowded parts (such as Manchester).

By the following figures one may compare the total admissions during the last five years, viz. :—

1904	254
1905	304
1906	443
1907	471
1908	508
1909	656

The average number of patients in hospital on each day of the year in 1906 was 65; in 1907 was 66; in 1908 was 75; and in 1909 was 94.

But of even more interest is it to note the increasing number of cases from Manchester (including Withington) that have been treated here, viz. :—

1905	135
1906	301
1907	316
1908	322
1909	373

The above figures will, I think, help to show the increasing usefulness of this hospital.

Seeing that this is the last Annual Report I shall have the pleasure of compiling for Baguley Sanatorium, I am concluding this report with the following tables, which give in tabular form the results obtained at that hospital during the six years during which I have been Medical Superintendent :—

Diphtheria Cases only.

1904	2 deaths in	33 cases =	6·06%
1905	8 „	47 „	= 17·02%
1906	7 „	80 „	= 8·74%
1907	2 „	29 „	= 6·89%
1908	8 „	72 „	= 11·11%
1909	3 „	68 „	= 4·41%
Totals for 6 years	30 „	329 „	= 9·11%

Scarlet Fever Cases only.

1904	6 deaths in	187 cases =	3·20%
1905	8 „	206 „	= 3·88%
1906	8 „	334 „	= 2·39%
1907	3 „	424 „	= 0·70%
1908	8 „	430 „	= 1·86%
1909	10 „	584 „	= 1·71%
Totals for 6 years	43 „	2,165 „	= 1·98%

All Cases Treated.

1904	11 deaths in	245 cases =	4·48%
1905	18 „	271 „	= 6·64%
1906	18 „	439 „	= 4·10%
1907	5 „	458 „	= 1·09%
1908	17 „	508 „	= 3·34%
1909	15 „	658 „	= 2·27%
Totals for 6 years	84 „	2,579 „	= 3·21%

In conclusion I wish to thank the Committee for their kindness to me during my term of office at Baguley Sanatorium, and for their message of good wishes for success in my new post.

T. Basil Rhodes,

Medical Superintendent.

REPORT BY MR. A. T. ROOK, SUPERINTENDENT OF THE SANITARY DEPARTMENT.

Sanitary Department,

Town Hall, Manchester.

In presenting to the Medical Officer of Health the report of the work transacted in the Sanitary Department for the year ending 30th April, 1909, I beg to state that the City, for inspection and other purposes, is divided into 29 Districts, to each of which one Sanitary Inspector has been assigned.

In addition to these, there is a Superintendent, one Chief Inspector, two Drainage, five Smoke, one Canal Boats, two Lodging-house, three Adulteration of Food, one Milkshops, six Factory and Workshops Inspectors including two Female Inspectors, and three Drain Examiners. There is also a staff of 32 Clerks for clerical and other work.

In the House Drainage Department there is also a Manager, ten Clerks and eight Clerks of Works for supervising and measuring up work done by the contractors employed by the department in carrying out private drainage work.

The number of complaints of nuisances of various kinds made during the year was 3,208 :—

1,268 through the Medical Officer of Health's Department.

1,912 by the public.

28 through the Police.

HOUSES LET IN LODGINGS.

Under the powers given by Section 90 of the Public Health Act, the bye-laws made thereunder have been enforced.

The number of houses on the register is 1,582. To these 4,170 day visits and 254 night visits have been paid. Sixty infringements of the regulations have been reported and dealt with.

DAIRIES, MILKSHOPS, AND COWSHEDS REGULATIONS.

Under this Order, which was made in July, 1879, and the Regulations thereunder in 1896, 3,176 milkshops and dairies and 63 cowkeepers are now on the register. The number of cows kept is 977. The number of visits to dairies, milkshops, and cowsheds was 1,411. Eleven infringements of the regulations have been reported and dealt with.

The number of ice cream manufacturers on the Register is 624. The number of visits was 1,116. Eight infringements of the regulations have been reported and dealt with.

WORKSHOPS, BAKEHOUSES, SHOP HOURS, AND SEATS FOR SHOP ASSISTANTS ACTS; ALSO THE HAIRDRESSERS AND BARBERS CLOSING ORDER.

Shop Hours and Seats for Shop Assistants Act

During the year the Acts have been well observed, only a few persons having been reported for infringements.

Workshop Acts

Much has been done to still further improve the condition of workshops, especially those in which females are employed, and every care has been taken to see that in all cases separate and suitable sanitary accommodation for the sexes has been provided.

Means of Escape in case of Fire

With regard to means of escape in case of fire, the whole of the factories and workshops in the City have been inspected, and with very few exceptions are now considered safe. The Bye-laws dealing with factories and workshops in which more than ten persons are employed come into force in October next, when all cases coming therein will be dealt with if necessary.

Periodical changes will, of course, from time to time take place in various ways which will bring buildings within the meaning of the Act, and necessitate the constant supervision of the Inspectors and action on the part of the authorities.

Bakehouses

The whole of the Cellar Bakehouses in the City (57) have been thoroughly repaired and put in a satisfactory sanitary condition, and certificates granted. The general sanitary conditions of all the Bakehouses in the City are well maintained, and are satisfactory.

Outworkers

Many visits have been paid to houses in various parts of the City in which out-work is carried on, as will be seen on reference to the following tabulated statement, but constant visitation is necessary to maintain the standard of cleanliness which is to be desired, especially in houses in which shirt-making, handkerchief-hemming, brace-making, and umbrella-covering, etc., is done.

The people, as a rule, appear willing to carry out any suggestion made by the Inspectors to keep their houses clean; but at the same time it is almost impossible for small houses, sometimes containing large families, to be kept in such a satisfactory condition as workshops.

The work done under the above Acts is shown in the following tables :—

TABLE SHOWING THE WORK DONE BY THE INSPECTORS UNDER THE SHOP HOURS AND SEATS FOR SHOP ASSISTANTS ACTS, THE HAIRDRESSERS AND BARBERS CLOSING ORDER, AND THE FACTORY AND WORKSHOP ACTS.

Number of District.	INSPECTOR	SHOPS — Shop Hours Act					SHOPS — Seats for Shop Assistants Acts					SHOPS — Hairdressers and Barbers Closing Order					WORKSHOPS						OUT-WORKERS		Factories and Workshops not provided with proper means of escape in case of fire	BAKEHOUSES					
		Number of visits	Number of Infringements of Act reported	Number of cases in which Magisterial proceedings have been taken	Number registered during the year	Total number on register	Number of visits	Number of infringements of Act reported	Number of cases in which Magisterial proceedings have been taken	Number registered during the year	Total number on register	Number of visits	Number of infringements of Act reported	Number of cases in which Magisterial proceedings have been taken	Number registered during the year.	Total number on register	Number of visits	Number in which Sanitary Defects were found	Number of Reports referred to H.M. Inspector (unregistered factories, &c.)	Number of cases in which Magisterial proceedings have been taken	Number registered during the year	Total number on register	Number of visits to houses where out-workers are employed	Number of houses found dirty.		Number of visits	Number in which Sanitary defects were found	Number of reports referred to H.M. Inspector of Factories	Number of cases in which Magisterial proceedings have been taken	Number registered during the year	Total number on register
1	Tolson	9	...	...	...	568	...	...	...	...	280	292	3	2	9	81	3157	380	87	5	193	1020	7	...	9	410	41	1	...	4	83
2	Partington.....	6	4	...	...	1103	...	...	...	...	498	197	1	1	7	147	3123	304	33	2	108	988	6	...	4	571	29	...	1	10	175
3	Vernon	1	...	...	...	523	...	...	...	...	215	391	2	3	20	108	3267	252	101	7	165	1054	7	...	2	421	52	5	...	7	131
4	Rowe	2	...	...	...	643	...	...	...	...	298	187	2	3	21	111	3644	273	88	1	173	1183	10	..	2	594	29	4	...	2	121
...	Emma Coppock	2274	142	1	132	...	796	...	...	66	...	...	...	...	...	...	1644	148	...	1	...	...	585	17	...	...	...	...	..	...	..
...	Margaret Rigby	2612	201	5	137	...	323	...	...	27	...	...	...	...	...	...	1154	108	6	8	...	...	1546	16	...	...	...	...	...	...	...
...	TOTALS.....	4904	347	6	269	2837	1119	...	...	93	1291	1067	8	9	57	447	15989	1465	315	24	639	4245	2161	33	17	1996	151	10	1	23	510

TABLE SHOWING THE NUMBER AND CLASSIFICATION OF PERSONS EMPLOYED AS OUTWORKERS BY FIRMS WITHIN THE CITY, AND THE NUMBER OF SUCH FIRMS.

TRADES	No. of Employers	No. of Outworkers or Contractors employed
Tailors	211	904
Shirt Makers	59	958
Dress, Mantle, Costume, &c., Makers	34	328
Underclothing and Pinafore Makers	56	440
Handkerchief Hemmers	18	289
Boot, Slipper, &c., Makers	54	175
Umbrella Trimmers	20	218
Quilt, Cushion, &c., Makers	6	75
Stay and Corset Makers	1	3
Cabinet Makers, Upholsterers, &c	5	20
Paper Bag Makers	3	12
Rubber Workers	4	5
Fur Workers	1	1
File Cutters	1	1
Opticians	1	1
Hair Pad and Frame Makers	2	7
Cap Makers	3	11
Belt and Trimming Makers	6	134
Embroiderers	1	22
Gold Beaters	1	9
Clippers	1	22
Shutter and Blind Makers	1	1
Hosiers	3	4
Totals	492	*3640

*3257 of these are in the City, the remainder are in the districts of other Local Authorities to whom lists showing the names and addresses have been sent.

Adulteration of Food and Drugs, and Margarine Acts.

Table showing the number of Articles of Food and Drugs procured for Analysis, the number Adulterated, the number informally purchased or in which no proceedings were taken, and the number of cases in which Magisterial Proceedings were taken, together with the Decisions and the Total Amount of Fines imposed.

Article	Number of Samples obtained	Number Adulterated	Number not Adulterated	Number Summoned before Magistrates	Number Fined	Number ordered to pay Costs only	Number Dismissed or Withdrawn	Amount of Fines Imposed	Amount of Costs ordered to be Paid
								£ s. d.	£ s. d.
Arrowroot	6	...	6	...	...	...	...	.....	.....
Baking Powder	19	...	19	...	...	...	...	.....	.....
Beer	76	...	76	...	...	...	...	.....	.....
Bread	44	...	44	...	...	...	...	.....	.....
Butter	367	*27	340	12	12	...	...	26 18 6	22 8 0
Camphorated Oil	7	...	7	...	...	...	...	.....	.....
Cheese	72	...	72	...	...	...	...	.....	.....
Coffee	122	†15	107	6	6	...	...	7 12 0	10 16 0
Confectionery	36	...	36	...	...	...	...	.....	.....
Cocoa	32	...	32	...	...	...	...	.....	.....
Cream	8	...	8	...	...	...	...	.....	.....
Drugs	60	...	60	...	...	...	...	.....	.....
Fish (potted)	7	...	7	...	...	...	...	.....	.....
Flour	45	...	45	...	...	...	...	.....	.....
Jams	50	...	50	...	...	...	...	.....	.....
Lard	66	...	66	...	...	...	...	.....	.....
Margarine	34	...	34	...	...	...	...	.....	.....
Milk (dealers)	1036	‡27	1009	26	18	...	8	24 7 6	24 14 0
Milk (farmers)	71	9	62	9	7	2	...	3 2 0	14 0 10
Mineral Waters, &c.	46	...	46	...	...	...	...	.....	.....
Mustard	35	...	35	...	...	...	...	.....	.....
Oatmeal	41	...	41	...	...	...	...	.....	.....
Olive Oil	2	...	2	...	...	...	...	.....	.....
Pepper	77	§ 1	76	...	...	...	...	.....	.....
Rice, Tapioca, &c.	21	...	21	...	...	...	...	.....	.....
Spices	43	...	43	...	...	...	...	.....	.....
Spirits	228	13	215	13	10	3	...	6 2 0	17 5 6
Tea	43	...	43	...	...	...	...	.....	.....
Treacle	16	...	16	...	...	...	...	.....	.....
Vinegar	3	...	3	...	...	...	...	.....	.....
Wines	11	...	11	...	...	...	...	.....	.....
Totals	2724	92	2632	66	53	5	8	68 2 0	89 4 4

* 15 of these were informally purchased.
‡ 1 cautioned by Committee.
† 9 of these were informally purchased.
§ Informally purchased.

Name of Offender	Address of Offender	Offence	Amount of Fine Imposed	Amount of Costs ordered to be Paid	Dismissed or Withdrawn
			£ s. d.	£ s. d.	
		SHOP HOURS ACT.			
Isaac Marcus	84, Heywood Street, Cheetham..	Not exhibiting Abstract of Shop Hours Act in shop	0 1 0	0 5 0	
John A. Brown.. ..	1, Higher Temple Street, Chorlton-on-Medlock	Ditto	.....	0 3 6	Withdrawn
Joseph Newton	227, City Road, Hulme	Ditto	.....	.....	Dismissed
Charles Elliott	241a, City Road, Hulme	Ditto	.....	0 3 6	Withdrawn
		HAIRDRESSERS AND BARBERS CLOSING ORDER, 1904.			
Robert Postlethwaite..	135, Upper Conran Street	Keeping his shop open after the closing hour fixed by the Order	0 5 0	0 5 0	
Joe Kaufman	29, Rugby Street, Cheetham ..	Ditto	.....	.....	Withdrawn
Thomas Shaw	105, Oxford Road, Chorlton-on-Medlock	Ditto	0 5 0	0 5 0	
Harry Morrison.. ..	102, Oldham Road	Ditto	0 2 6	0 2 6	
Pineo Feldman	137, Bury New Road..	Ditto	0 5 0	0 5 0	
Ditto	Ditto	Not exhibiting a notice in his shop as required by the Order	0 5 0	0 5 0	
		Carried forward	1 3 6	1 14 6	

PROSECUTIONS FOR OFFENCES, WITH RESULTS—*continued.*

Name of Offender	Address of Offender	Offence	Amount of Fine Imposed	Amount of Costs ordered to be Paid	Dismissed or Withdrawn
			£ s. d.	£ s. d.	
		Brought forward	1 3 6	1 14 6	
	HAIRDRESSERS AND BARBERS	CLOSING ORDER, 1904—*continued.*			
Louis Hershcovitz ..	159, Great Ducie Street	Keeping his shop open after the closing hour fixed by the Order	0 5 0	0 5 0	
Ditto	Ditto	Ditto	0 2 6	0 2 6	
Lazarus Malikowsky..	181, Great Ducie Street	Ditto	0 5 0	0 6 0	
Isaac Krulik	91a, Great Ducie Street	Ditto	0 5 0	0 5 0	
Richard Barnett ..	64, Rochdale Road, Harpurhey..	Ditto	0 5 0	0 5 0	
Isaac Koffler	81, Rochdale Road, Harpurhey..	Ditto	0 5 0	0 5 0	
John Kitchen	121, Great Jackson Street.. ..	Ditto	0 5 0	0 7 6	
Peter Beswick	5, Edge Lane, Higher Openshaw	Ditto	0 5 0	0 5 0	
John Carroll	120, Leaf Street, Hulme	Ditto	0 2 6	0 2 6	
	FACTORY AND	WORKSHOP ACTS.			
L. Friesner & Co. ..	28, Dutton Street, Cheetham ..	Not forwarding to the Local Authority a list of persons employed by them as outworkers or contractors	.....	0 3 6	Withdrawn
James F. Murphy ..	Junction Street, London Road..	Ditto	.....	0 3 6	Withdrawn
J. J. McKinna	206, Hyde Road, West Gorton..	Ditto	0 2 6	0 5 0	
Rebecca Sinclair ..	35, John Dalton Street	Ditto	.....	0 3 6	Withdrawn
W. F. Whalley	93, Grosvenor Street	Ditto	.....	0 3 6	Ditto
		Carried forward	3 6 0	4 17 0	

PROSECUTIONS FOR OFFENCES, WITH RESULTS—*continued.*

Name of Offender	Address of Offender	Offence	Amount of Fine Imposed	Amount of Costs ordered to be Paid	Dismissed or Withdrawn
			£ s. d.	£ s. d.	
		Brought forward	3 6 0	4 17 0	
		FACTORY AND WORKSHOP ACTS—*continued.*			
R. U. Tugman & Co. .	24, Pritchard Street, Chorlton-on-Medlock	Not forwarding to the Local Authority a list of persons employed by them as outworkers or contractors	0 1 0	0 2 6	
Jacksons Ltd.	111, Market Street	Ditto	0 1 0	0 2 6	
American Shoe Co. ..	2, Deansgate	Ditto	.....	0 3 6	Withdrawn
Chas. Carruthers & Co.	21, Blake Street, Hulme	Ditto	.....	0 3 6	Ditto
Household Stores Assoc	44, King Street West..	Ditto	.....	0 3 6	Ditto
Wolfe Rosenburg ..	18, Bury New Road	Ditto	.....	0 3 6	Ditto
John Warburton ..	10, Kennedy Street	Ditto	.. ..	0 3 6	Ditto
Alfred Hulton & Co. .	175, Princess Street	Neglecting to cleanse and limewash the walls and ceilings of the workshop, closet, staircase, and passage; also to thoroughly cleanse the floors of the workshop, closet, and passage, the stairs, and the seat and basin of water-closet at No. 175, Princess Street	.....	.....	Withdrawn (work done)
Joseph Tatton	Ditto	Ditto	.....	.....	Ditto
James T. Hilton ..	Ditto	Ditto	.....	.....	Ditto
		Carried forward	3 8 0	5 19 6	

Name of Offender	Address of Offender	Offence	Amount of Fine Imposed	Amount of Costs ordered to be Paid	Dismissed or Withdrawn
		Brought forward	£ s. d. 3 8 0	£ s. d. 5 19 6	
	FACTORY AND WORKSHOP	ACTS—*continued.*			
Kenneth Sutherland..	175, Princess Street	Neglecting to cleanse and limewash the walls and ceilings of the closet, staircase, and passage; also to cleanse the floors of the closet and passage, the stairs, and the seat and basin of water-closet at No. 175, Princess Street	.....	.....	Withdrawn (work done)
W. H. Robinson & Son	Blackfriars Street	Neglecting to provide efficient means of light to the water-closet chamber at No. 2a, Carnarvon Street	.....	.....	Ditto
F. and G. W. Stonier..	Harris Street, Cheetham	Neglecting to provide and maintain sufficient and satisfactory means of ventilation (inlet and outlet) to the workshop, No. 20, Harris Street, Cheetham	.....	.....	Ditto
		Carried forward	3 8 0	5 19 6	

PROSECUTIONS FOR OFFENCES, WITH RESULTS—*continued*

Name of Offender	Address of Offender	Offence	Amount of Fine Imposed	Amount of Costs ordered to be Paid	Dismissed or Withdrawn
		Brought forward	£ s. d. 3 8 0	£ s. d. 5 19 6	
	FACTORY AND WORKSHOP	ACTS—*continued.*			
Jos. Laycock & Son ...	26, Brown Street..	Neglecting to take out and remove defective water-closet and substitute in lieu thereof a new pedestal wash-down water-closet, with proper flushing arrangements, at No. 4, Downing Street, London Road	.....	.....	Withdraw (work done)
George Rutter	20, Howard Street, Ardwick ..	Neglecting to cleanse the walls and ceilings of his house	.....	.....	Ditto
Myer Kersh	4, Corporation Street	Neglecting to thoroughly repair the roof of the workshop, No. 163a, Great Ducie Street, so as to prevent rainwater percolating through	.....	0 3 6	Ditto
		Total	£3 8 0	£6 2 6	

SMOKE NUISANCES.

For the abatement of smoke nuisances, the five Inspectors appointed specially for this work have taken 1,024 timed observations of half-an-hour each, with the result that 93 notices for the abatement of nuisances have been served. Proceedings before the Magistrates have been ordered in 137 cases out of 178 offences reported. These cases were disposed of as follows :—

One hundred and thirty-seven were summoned before the Justices, in 96 of which fines were imposed amounting to £239 12s. 6d., and costs £54 8s. 8d. Four were ordered to pay costs only.

Twenty-three orders of abatement were granted and served, 14 cases were excused, dismissed, or withdrawn.

Much attention during the past year, as will be seen by the above, has been given to the nuisance caused by the emission of black smoke, not only from the furnaces connected with boilers in mills, warehouses, and other works, but also from chemical and other industries, and the efforts made have already resulted in a considerable reduction of the nuisance.

Magisterial proceedings have been taken against a firm situate in an adjoining Authority in regard to smoke nuisances committed in their district, and an order of abatement made; subsequently penalties were imposed for further offences.

CANAL BOATS ACTS.

The number of canal boats on the register is 553.

The number of inspections made was 2,345, resulting in five infringements of the Act being discovered, which were referred to the Justices to be dealt with. In all the cases fines were imposed amounting to £1 15s., with costs £1 13s.

Caution notices were sent to the owners or masters of 43 boats.

OFFENSIVE TRADES.

The number of offensive trades on the register is 812. These have been placed under close supervision, and periodical visits paid.

UNHEALTHY DWELLINGS.

During the year 2,335 houses were certified to be dealt with by the Sanitary Committee.

Of these, 2,164 were ordered to be closed.

In the majority of these the owners arranged to make alterations to meet the requirements of the Corporation.

PARTICULARS RELATING TO THE OPERATIONS OF THE CLEANSING DEPARTMENT.

Cleansing Department,
Town Hall, Manchester,
June, 1910.

Dear Sir,—There are within the City (exclusive of the District of Withington, but inclusive of Gorton and Levenshulme) 24,169 pail-closets; 62,833 ash-boxes; 60,898 ash-bins; 7,376 midden-privies; 3,511 wet middens; 1,445 dry middens; 123,970 water-closets; and 12 cesspools. The pail-closets are systematically emptied at regular intervals—once, twice, or thrice weekly, as necessity demands. The midden-privies are emptied as required. The contents of the pail-closets are taken to Holt Town and Water Street. At Holt Town the fæcal matter is dried into concentrated manure. The dry refuse is consumed in the Galloway boilers, and generates the steam equired for working the machinery. The worthless fine ash, which cannot be consumed, is deposited at the nearest tip at Clayton Vale. The privy refuse and fæcal matter, which is taken to Water Street, is sent away in its crude state as nightsoil to Carrington and Chat Moss Estates and to farmers in Cheshire. Dry combustible matter is passed into the destructor furnaces or under the Galloway boilers at Water Street, and there destroyed. A large quantity of fine ash at Water Street is used as an absorbent for the fæcal matter from the pail-closets.

The market garbage, of which we have 5,165 tons per annum, is carted to Water Street, and destroyed in the furnaces. Slaughter-house refuse is collected from the abattoirs and private slaughter-houses and sent to Holt Town, where it is passed through dryers, and the dry material is then added to the concentrated manure. Street sweepings are generally deposited at the nearest depot, and after being allowed to drain are carted to the nearest tip, or to the Water Street Depot, from whence they are sent away by boat to farmers or to the Committee's Estates. The total quantity of material collected by this Department during the past year amounted to 335,745 tons.

We have within the City about 43 destructor furnaces and 20 boilers, and last year 11,686 tons of mortar was made from the clinker obtained from such furnaces.

We employ about 51 "orderly" youths and men, who collect horse-droppings and litter from the streets, and deposit the same in the bins fixed in the footpaths. The contents of the bins are removed twice daily, and taken to the nearest depot.

Acting upon instructions received from you, special pails and lids are supplied for all cases of Enteric Fever; labels are attached to the pails asking the occupants of the house to use disinfectants, which are supplied with the pails; the pails are left in the yard, and not placed in the ashplace. The occupants are requested to use this special pail for the reception of the fæcal matter and washings from the patient only. The pails are removed in a specially-constructed vehicle, and taken to Holt Town Depot, where the contents are destroyed.

With regard to the cleansing of passages, we have a staff of about 54 men engaged specially upon this work. They regularly, at least once a week, cleanse the back passages in certain districts, and during last year 381,187 swillings and cleanings were effected in courts and passages.

During the year, 102,193 barrels of water were used in degging the streets, and 338,560 grids were unstopped.

During the past 19 years, we have deposited upon the various tips within the City the following quantities of material, viz.:—In 1892, 99,866 tons; 1893 109,078 tons; 1894, 103,949 tons; 1895, 113,836 tons; 1896, 107,883 tons; 1897, 99,658 tons; 1898, 96,635 tons; 1899, 104,481 tons; 1900, 95,138 tons; 1901, 64,781 tons; 1902, 117,619 tons; 1903, 180,985 tons; 1904, 141,999 tons; 1905, 118,093 tons; 1906, 109,446 tons; 1907, 134,072 tons; 1908, 120,581 tons; 1909, 123,183 tons; and in 1910, 127,409 tons. The bulk of this material was deposited on the tips at Clayton and Harpurhey. It is composed principally of dry ashes, street sweepings, and bell-dust. Occasionally the contents of dry middens are sent there. During last year 21,967 tons of material was sent to Carrington Estate and 60,089 to Chat Moss Estate.

Yours faithfully,

R. WILLIAMSON,

Superintendent.

Dr. Niven,

Medical Officer of Health,

Town Hall, Manchester.

MEAT INSPECTION.

The Markets Committee present the following report :—

Your Committee submit, for the information of the Council, the following report with reference to unwholesome meat, fish, etc., condemned and destroyed in this City under the Public Health Acts of 1875 and 1890, and also a report dealing with matters under the Diseases of Animals Acts, during the year ending December 31st, 1909 :—

Unwholesome Food.

Meat and Fish.

Beef	277,020	lbs.
Mutton	16,023	,,
Veal	7,232	,,
Pork	31,417	,,
Venison	741	,,
Imported Offals	10,763	,,
	343,196	,,
Fish	159,008	lbs.
Shellfish	39,657	,,
	198,665	,,
Rabbits	3,880	

Game.

Rooks	43	head
Pheasants	3	,,
Grouse	41	,,
Quails	69	,,
Hares	57	

Poultry.

Fowls	334	
Ducks	18	
Geese	6	
Turkeys	1	
Pigeons	171	head

Miscellaneous.

Fruit.

Bananas	630	lbs.
Tomatoes	530	,,
Melons	784	,,
Grapes	50	,,
Strawberries	5,005	,,
Blackberries	972	,,
Raspberries	160	,,
Black Currants	801	,,
Plums	4,260	,,
Pears	8,461	,,
Apples	15,529	,,
Bilberries	2,380	,,
Red Currants	1,296	,,
Gooseberries	4,372	,,
Damsons	7,392	,,
Winesours	720	,,
Green Figs	12	,,
Preserved Fruit	1,306	,,
Tinned Fruit	28	,,

Vegetables.

Onions	361	lbs.
Cress	2,588	,,
Cauliflowers	5,600	,,
Sprouts	5,044	,,
Peas	12	,,
Potatoes	300	,,
Salads	80	,,
Lettuce	3,236	,,
Cabbage	1,260	,,
Spinach	500	,,
Mushrooms	139	,,
Yeast	1,680	lbs.
Plover Eggs	19	
Eggs	19	

With the exception of 11 lbs. of meat, 39 lbs. of fish, and 20 lbs. fruit, which were seized while deposited or exposed for the purpose of sale, the above quantities were surrendered by the trade after being condemned by the inspectors. (The term "surrendered" includes cases in which the inspectors have discovered the diseased meat, etc., in the course of their duty.)

The number of carcases, portions of carcases, consignments of fish, etc., condemned during the year has been 5,907, from the following causes :—

Decomposition	1,896	Hydatids	30
Tuberculosis	1,854	Actinomycosis	25
Fluke Disease	478	Septicaemia	21
Unmarketable	164	Pleurisy	19
Dropsy	157	Necrosis	18
Swine Fever	149	Peritonitis	14
Parasitic	134	Pyaemia	12
Emaciation	115	Nephritis	10
Asphyxiation	108	Pericarditis	8
Fever	99	Unclean	8
Tumour	97	Inflammation	7
Abscesses	94	Icterus	4
Cirrhosis	87	Black Quarter	4
Degeneration	77	Unseasonable	4
Congestion	69	Ostitis	2
Pneumonia	55	Anthrax	2
Mammitis	44	Hepatitis	1
Injured	40	Metritis	1

Of the Meat, Fish, etc., there was Condemned :—

	Lbs.
In the Abattoirs and Carcase Market (147,477 lbs. being dressed meat consigned from places other than the City, 10,763 lbs. of which was imported offals.)	324,892
„ Pig Market	5,179
„ Private Slaughter-houses	5,953
„ Railway Stations	3,523
„ Shops	489
„ Rusholme Abattoirs	397
At a Farm	134
In the Cold Air Stores, Elm Street	1,173
„ Cold Stores, Copperas Street	1,069
„ Triperies	1,369
„ Smithfield Fish Markets	197,683
	541,861

Of the game, rabbits and poultry, fruit and vegetables, etc., there was condemned :—

At the Smithfield Fish, etc., Markets—3,319 rabbits, 57 hares, 334 fowls, 6 geese, 1 turkey, 1 duck, 41 head grouse, 3 head pheasants, 110 head pigeons, 43 head rooks, 69 head quails.

At the Smithfield Fruit and Vegetable Market—527 rabbits, 17 ducks, 61 head pigeons, 12 lbs. peas, 1,260 lbs. cabbage, 300 lbs. potatoes, 2,340 lbs. lettuce, 1,296 lbs. red currants, 720 lbs. winesours, 241 lbs. black currants, 3,860 lbs. plums, 2,588 lbs. cress, 2,380 lbs. bilberries, 530 lbs. tomatoes, 8,461 lbs. pears, 361 lbs. onions, 5,044 lbs. sprouts, 4,732 lbs. damsons, 92 lbs. blackberries, 80 lbs. salads, 12 lbs. green figs, 3,529 lbs. apples, 28 lbs. tinned fruit, 4,372 lbs. gooseberries, 5,005 lbs. strawberries, 500 lbs. spinach, 50 lbs. grapes, 19 plover eggs, 630 lbs. bananas, 784 lbs. melons, 117 lbs. mushrooms.

At the Railway Stations—880 lbs. blackberries, 560 lbs. black currants, 5,600 lbs. cauliflower, 896 lbs. lettuce, 22 lbs. mushrooms, 1,680 lbs. yeast, 1 case eggs.

At the Cold Stores, Copperas Street—400 lbs. plums, 160 lbs. raspberries.

At the City Abattoirs—34 rabbits.

At Warehouses—12,000 lbs. apples, 2,660 lbs. damsons.

At Store Room—1,306 lbs. preserved fruit.

In addition to thorough inspection at the Abattoirs and Markets, 2,953 visits have been made to private slaughter-houses (64 being at the request of the butchers) and 16,494 carcases examined, 28 carcases and portions of 37 others being condemned as unfit for human food.

8,519 visits have been made to the meat, fish, fruit, and provision shops, and in four cases the shopkeepers were severely cautioned for having small amounts of unsound food in their possession.

213 visits have been made to the railway stations to prevent the distribution of unwholesome food consigned to the City.

Frequent visits have been made to the triperies, sausage and pie factories, and the poultry dressing cellars.

Three Orders for the destruction of unsound food have been obtained at the City Police Courts during the year.

1,808 certificates of condemnation have been granted, chiefly to commission agents, for the purpose of being forwarded to the consignors.

Contagious Diseases of Animals.

During the year there has been one outbreak of glanders in the City. The horse having died, no compensation was payable.

There have been 6 outbreaks of swine fever within the City, 166 pigs being affected with the disease.

Nineteen outbreaks of parasitic mange in horses have been dealt with by the Inspectors under the Lancashire (Parasitic Mange) Order of 1908, 43 horses being affected with the disease.

There have been three cases of anthrax, two being dressed carcases consigned to the Carcase Market from country districts; the other occurred on a farm within the City. The circumstances in each case have been reported to the Board of Agriculture and Fisheries and to the Authorities concerned.

Under the Sheep Dipping Order, 1907, 902 sheep have been dipped within the City under the supervision of the Inspectors.

The Pig Market has been visited daily by a Veterinary Inspector under the Swine Fever Orders, 1894 and 1908, the Swine Fever (Regulation of Movement) Orders, 1903 and 1908, and the Swine Fever (Movement from Ireland) Orders of 1904 and 1906, all cases of infringement of such Orders being immediately reported to the Board of Agriculture and Fisheries, or dealt with by the Inspectors. There has been one outbreak of swine fever in this Market, which was dealt with by the Board of Agriculture and Fisheries.

420 visits have been made to the Railway Stations and Cattle Docks for the purposes of the Animals (Transit and General) Order of 1895, and the Conveyance of Horses Order, 1909.

The Horse Market has been visited each month by a Veterinary Inspector.

On behalf of the Committee,

(Signed) D. McCabe,

Chairman.

Town Hall, Manchester,

18th February, 1910.

REPORT ON THE HEALTH OF THE WITHINGTON DISTRICT IN 1909.

By Dr. Carnwath, District Medical Officer of Health.

I beg to submit the following brief statement as to the health of the Withington District of Manchester during the past year.

The population of the district in June, 1909, was estimated at 46,036, distributed over the several townships as follows :—

Withington (including Whalley Range)	17,392
Didsbury	11,122
Chorlton-cum-Hardy	15,353
Burnage	2,169

The total number of deaths recorded was 495—239 males and 256 females. Of these, 402 were of persons resident within the district, 42 of persons resident in the Chorlton Union Workhouse, and 51 of persons resident in localities outside the district.

Calculated on the above figures the death-rate for the year was 10·7, or, corrected for age and sex, 11·1. The corrected rate for 1908 was 11·3.

A slight increase in the birth-rate occurred. The total number of births was 925, which gives a birth-rate of 20·0, as compared with 19·4 in the previous year.

The following table gives the numbers of births and deaths occurring during the year in the several townships, together with the corresponding birth-rates and death-rates :—

	Births	Deaths	Birth-rate	Death-rate
Withington (including Whalley Range)..	410	201	23·5	11·5
Didsbury	195	110	17·5	9·8
Chorlton-cum-Hardy..	269	150	17·5	9·7
Burnage	51	34	23·5	15·6

The main causes of death were Influenza 17, Tubercular Diseases 49, Pneumonia 39, other Diseases of the Respiratory System 30, and Heart Diseases 78. 13 deaths were attributed to Alcoholism, and Accident was responsible for 16. There were 9 deaths from Suicide in the district during the year.

In the age-period 1–5, Scarlet Fever (3), Tubercular Diseases other than Phthisis (3), Pneumonia (8), and Diarrhœa (2) claimed the heaviest toll. Between the ages 5–15, 3 deaths were attributed to other Tubercular Diseases, 2 to Scarlet Fever, 2 to Diphtheria, and 3 to Pneumonia.

In the following table are given the annual rates of mortality from certain diseases and groups of diseases :—

Table I.—Death-rates per thousand from the principal diseases, 1902 *to* 1909.

Name of Disease	1902	1903	1904	1905	1906	1907	1908	1909
Measles	0·48	0·16	0·02	0·18	0·10	0·05	0·31	0·02
Scarlet Fever	0·20	0·08	0·08	0·02	...	...	...	0·12
Whooping Cough	0·02	0·33	0·24	0·05	0·05	0·20	0·20	0·04
Diphtheria and Membranous Croup	0·17	0·05	0·08	0·10	0·15	...	0·11	0·08
Enteric Fever	0·02	0·02	0·05	0·05	...	0·07	0·04	0·02
Epidemic Influenza ...	0·30	0·13	0·18	0·28	0·20	0·17	0·18	0·36
Diarrhœa	0·08	0·19	0·18	0·21	0·43	0·10	0·31	0·15
Phthisis	0·77	1·05	0·78	0·52	0·89	0·97	0·72	0·67
Other Tubercular Diseases	0·31	0·38	0·29	0·23	0·38	0·37	0·47	0·32
Cancer, Malignant Diseases	0·91	0·97	0·83	0·84	0·71	0·70	0·79	0·71
Diseases of the Respiratory Organs	2·08	1·38	2·29	1·73	1·79	1·77	1·24	1·56
Alcoholism, Cirrhosis of Liver	0·22	0·27	0·29	0·13	0·15	0·22	0·09	0·28
Heart Diseases	1·02	1·00	1·21	1·21	1·07	1·40	1·35	1·69

Below are given in some detail the particulars relating to infant mortality.

The 71 deaths under one year correspond to an annual infantile death-rate of 76·7. As is seen from Table III. the largest number of deaths occurred within the first three months of life. What may be regarded as "antenatal causes" (indicated by prematurity, congenital defects, atrophy, some cases of convulsions, and lung diseases) were responsible for at least 45 to 50 per cent., other diseases of the respiratory system for 10 per cent., and Diarrhœa for 14 per cent.

The mortality amongst illegitimate infants was again high, being 250 per 1000 born as compared with the low figure 72·1 for legitimate children.

Table II.—Causes of deaths under 5 years in 1909.

	0–3 Months	3–6 Months	6–12 Months	Total under 1 year	1–2 years	2–3 years	3–4 years	4–5 years	Total under 5 years
Measles	—	—	—	—	1	—	—	—	1
Whooping Cough	—	—	1	1	—	—	—	—	1
Scarlet Fever	—	—	—	—	1	—	—	2	3
Diphtheria and Membranous Croup	—	—	—	—	—	—	—	1	1
Influenza	—	—	—	1	—	—	—	—	1
Tetanus	—	—	—	—	—	—	—	—	—
Syphilis	2	—	—	2	—	—	—	—	2
Diarrhœa and Enteritis	4	3	3	10	2	—	—	—	12
Tuberculosis	—	1	3	4	1	1	1	—	7
Hydrocephalus	—	—	—	—	1	—	—	—	1
Premature Birth	13	—	—	13	—	—	—	—	13
Atrophy	8	—	—	8	—	—	—	—	8
Congenital Defects	9	1	—	10	—	—	—	—	10
Convulsions	3	1	1	5	—	1	—	—	6
Rickets	—	1	1	2	2	—	—	—	4
Laryngitis	1	—	—	1	1	—	—	—	2
Diseases of Respiratory System	3	—	3	6	3	3	2	—	14
Brain Disorder (other)	—	—	—	—	—	—	—	—	—
Found dead in bed	1	—	—	1	—	—	—	—	1
Suffocation	1	—	—	1	—	—	—	—	1
Other causes	6	1	—	7	—	—	1	2	10
	51	8	12	71	13	5	4	5	98

INFECTIOUS DISEASES.

Smallpox.—No case occurred.

Measles.—310 cases were reported from the Education Department. The disease, which was confined mainly to Withington and Didsbury, spent itself in the early part of the year—only sporadic cases occurring after June. As in previous epidemics, the spread of the infection was almost altogether by school contact. 188 of the total number reported occurred in children between the ages of 5 and 7 years. The case mortality was fortunately low, 0·3 per cent.

Whooping Cough.—154 cases of Whooping Cough were reported during 1909. The heaviest incidence was in Chorlton-cum-Hardy in the first two months of the year (91 cases). Two deaths occurred, one of which was of a child under one year.

The following table shows the number and distribution of cases of Scarlet Fever notified during 1909, together with the number of patients removed to Hospital :—

Month	Withington	Didsbury	Chorlton-cum-Hardy	Burnage	Total	Number removed to Hospital
January	1	7	1	—	9	4
February	7	7	6	1	21	10
March	6	6	7	—	19	9
April	18	5	3	4	30	23
May	12	12	2	8	34	22
June	10	5	3	3	21	11
July	10	1	4	1	16	10
August	6	2	4	—	12	9
September	11	—	20	—	31	18
October	4	2	14	—	20	9
November	5	1	1	7	14	11
December	6	2	13	—	21	15
	96	50	78	24	248	151

These numbers show a considerable increase on those for 1908. The chief foci of the disease were Green End in the spring of the year, and in the autumn the district round Hawthorne Road, Chorlton-cum-Hardy. The cases at Green End had their origin in a family in Ford Street, one member (No. 242) of which was diagnosed by the doctor in attendance to be suffering from a mild attack of Rheumatism, while the sister and the brother were said to be recovering from Mumps. On examination, all three were found to have Scarlet Fever.

The outbreak which occurred in Chorlton-cum-Hardy in the autumn was traced to an overlooked attack in a child (No. 346) attending the infants' department of St. Clement's School. To this case 14 others were attributed with more or less certainty. The brother, who attended the boys' department, was also examined at the same time and found to be desquamating, but here the infection spread no further—an instance of the occasional harmlessness of

such cases in the advanced classes of a school as compared with their always serious significance in infant departments.

The cases reported from the Claremont Road neighbourhood may be regarded as of the nature of an overflow from the Moss Side district of the City.

The attack rate for the year was 5·3 per thousand, and the case mortality 2·4.

Diphtheria.—The following is the usual table relating to the distribution of Diphtheria during the year:—

The prevalence of the disease was general, no one district being specially affected.

Month	Withington	Didsbury	Chorlton-cum-Hardy	Burnage	Totals	Number removed to Hospital
January	4	6	2	—	12	8
February	1	4	3	—	8	5
March	1	—	3	—	4	2
April	2	—	5	—	7	6
May	3	1	—	—	4	2
June	7	1	2	—	10	6
July	—	1	3	3	7	4
August	—	1	1	—	2	1
September	1	2	1	—	4	2
October	1	2	1	—	4	1
November	1	—	3	—	4	2
December	—	1	1	—	2	1
	21	19	25	3	68	40

During the year 157 swabs were examined—53 with positive results, and 12 in which the result was doubtful. Of the total number of cases notified, 37 were examined bacteriologically. In 29 of these, Diphtheria bacilli were found.

The case mortality for the year was 5·8 per cent., as compared with 6 in 1908 and *nil* in 1907.

One hundred and forty-six phials of Diphtheria Antitoxin were supplied free to the medical profession during the year. It is now possible to obtain the remedy at the various police stations, and practitioners have availed themselves freely of this facility.

The attack-rate for the whole district was 1·4 per thousand, compared with 1·7 in 1908, 0·6 in 1907, and 0·6 in 1906.

Enteric Fever.—Four cases of this disease were reported during the year, one of which proved fatal. The average annual number of cases during the previous 10 years was 11·5.

Three of these yielded a positive Widal reaction, and in the remaining case no test was taken.

The attack-rate for the whole district was 0·08 per 1,000, compared with 0·18 in 1908. The case mortality works out at 25 per cent.

One of the four cases was removed to Monsall Hospital and one to the Chorlton Union Hospital.

Erysipelas.—Nine cases of Erysipelas were notified during the year, none of which, however, terminated fatally. The usual enquiries were made in each case—particularly as to whether a monthly or district nurse was in attendance —and disinfection carried out where necessary.

Puerperal Fever.—The two cases which came to our knowledge were investigated by Dr. Merry Smith. One was removed to Monsall Hospital. One case ended fatally. In each case the bedding was stoved, and the usual precautions taken to prevent the nurses carrying infection.

Phthisis.—During the year there were recorded 31 deaths from this disease. Disinfection was offered in all cases, and refused only in six. Forty-five specimens of sputum were examined, and a positive result obtained in 29.

The following table shows the number of cases in which rooms and bedding have been disinfected after Phthisis for each year since the practice was commenced (March 8th, 1900) :—

	1901	1902	1903	1904	1905	1906	1907	1908	1909
Fatal cases of Phthisis	26	27	38	29	20	35	39	33	31
Rooms of patients disinfected, paper stripped, walls washed down with one per cent. chloride of lime solution, and bedding stoved	20	20	30	24	24	37	89	104	93
Partial disinfection	1	4	1	2	3	4	14	—	1
Disinfection refused	5	3	7	7	—	1	1	—	6

The above figures relate to all patients suffering from Phthisis reported either as having died or as having removed to other premises.

Removal to Hospital.—The number of patients removed to hospital was as follows :—

Disease	Baguley Sanatorium	Monsall	Chorlton Union Workhouse	Ladywell Sanatorium
Diphtheria	38	2	—	—
Erysipelas	—	1	1	—
Scarlet Fever	139	7	5	—
Enteric Fever	—	1	1	—
Puerperal Fever	—	1	—	—
	177	12	7	—

The number of patients who have suffered from Scarlet Fever, Diphtheria, and Enteric Fever in the district in each of the years from 1896 to 1909, together with the annual number of removals to hospital, is shown in the following table :—

Year	Number of Cases of Fever in the District	Removed to Hospital	Percentage
1896	S.F. 120. D. 13. E. 10—Total 143	63	44
1897	S.F. 177. D. 16. E. 10— ,, 203	121	59
1898	S.F. 70. D. 22. E. 25— ,, 117	54	46
1899	S.F. 68. D. 16. E. 16— ,, 100	28	28
1900	S.F. 204. D. 14. E. 8— ,, 226	120	53
1901	S.F. 245. D. 31. E. 11— ,, 287	162	56
1902	S.F. 109. D. 26. E. 6— ,, 141	73	51
1903	S.F. 85. D. 31. E. 14— ,, 130	58	44
1904	S.F. 80. D. 28. E. 5— ,, 113	43	38
1905	S.F. 136. D. 50. E. 6— ,, 192	92	47
1906	S.F. 113. D. 64. E. 12— ,, 189	133	70
1907	S.F. 128. D. 24. E. 21— ,, 173	96	55
1908	S.F. 94. D. 77. E. 8— ,, 179	96	54
1909	S.F. 248. D. 68. E. 4— ,, 320	193	60

In the following statement of the Inspector of Nuisances are given particulars of the work carried out during the year. I reproduce these in detail to show the extent and multifarious nature of the duties discharged by the department, and to afford material for the consideration of the question of appointing additional help.

Complaints received and attended to—1909, 298 ; 1908, 265.

Many of the complaints received are due to the following causes :—

(1) The dirty state of unpaved roads and passages which have not been taken over by the Council, and which require sewering, paving, flagging, or scavenging.

(2) Frequent flooding from streams and watercourses in the district, caused by the gradual silting up of the streams or by the heavy rainfall.

(3) Dead animals in ponds or on vacant land, chiefly at the Moss Side end of the district. The attention of the Police has been called to this matter, and two notices have been served upon the owners of the ponds.

160 Notices were served during the year for alteration of insanitary conditions.

Notices served	Notices	Premises concerned
Under Section 46 M.I. Act, 1845	7	7
,, ,, 36 P.H. Act, 1875	6	17
,, ,, 41 ,, ,, ,, ...	19	103
,, ,, 50 ,, ,, ,, ...	1	1
,, ,, 91 to 94 ,, ,, ...	15	38
,, ,, 22 P.H.A.Amendment Act, 1890	9	7
,, Dairies and Cowsheds Orders	2	2
Town Clerk Notices	101	137
	160	312

Notices to enter premises under Section 41 P. H. Act, 1875—105.

Insanitary premises altered without notice—88.

Accumulations of manure, etc., removed—13.

Removal of animals—3.

Premises overcrowded—1.

Premises inspected as to their sanitary condition—172.

Premises inspected as to their sanitary condition after the notification of infectious fever, including Phthisis, Zymotic Enteritis, etc.—329.

Premises visited *re* passengers from infected ports or ships (Cholera, etc.)—41.

Disinfection.—The total number of articles stoved in 1909 was 7,175 (an increase of 1,439 over the number 5,736 stoved in 1908), and consisted of the following:—Beds, 411; mattresses, 344; pillows, 1,041; blankets, 920; carpets, 625; clothes, 2,528; counterpanes, 409; sundries, 897.

Premises disinfected after fevers, including Phthisis, etc.—295 houses, 830 rooms.

Re-inspections of premises during disinfection—472.

Drainage and Sanitary Alterations.

Old drains and sanitary fittings of premises, smoke tested—6.

The smoke tests were applied by request, and the cost charged to the applicants.

During the year, 1,701 inspections were made of works in progress.

1,150 tests of drains, water-closets, and soil pipes were made with the water test in connection with sanitary alterations; 116 premises were redrained throughout, and tested with the water test (94 under notice and 22 without notice).

Details of Work done	Under notice	Without notice	Total
Defective water-closets replaced by new ones ..	29	24	53
New soil pipes of heavy cast iron	32	40	72
New ventilating shafts provided to soil pipes and at heads of drains	54	45	99
Manholes, with approved disconnecting traps ..	1	10	11
Disconnecting traps, without manholes	5	5	10
Privies dismantled and sites made good	133	34	167
Ashpits dismantled and sites made good	104	39	143
Water-closets substituted for privies	100	33	133
Galvanised-iron dustbins provided	*188	46	234
Cellar floors: flagged, concreted, or repaired ..	70	3	73
Yards or scullery floors: flagged, concreted, or repaired	113	30	143
Waste pipes or rain-water pipes: trapped, renewed, or repaired	105	47	152
Stopped drains cleared	5	24	29
Areas constructed for cellar drains..	13	1	14
Additional water-closets provided	3	6	9

* 9 supplied by default, and cost recovered from owner.

All the milk farms in the district are supplied with Corporation water.

Dairies, Cowsheds, and Milkshops.—During the year, 308 visits have been made to cowsheds and milkshops. Two new cowsheds have been constructed at Didsbury, with accommodation for 16 cows (nine and seven respectively). Two notices have been served under the Dairies and Cowsheds Orders. One dairy has had additional light and ventilation provided and the floor repaired, etc., without notice.

The cowsheds have been regularly limewashed.

One cowkeeper and fifteen purveyors of milk have been registered during 1909.

Registered milksellers in the district—160. Registered cowkeepers—37. Cowsheds—85. Milkshops—72.

Slaughter-houses.—Thirty-four visits of inspection have been made to the four slaughter-houses in use in the district, and they all appear to be conducted in a satisfactory manner.

Reports made to the Medical Officer—418. Reports made to the Surveyor—20. Letters written for abatement of nuisances, etc.—107. Circulars sent for abatement of nuisances, etc.—54. Miscellaneous inspections, visits to premises, etc.—1,130. Inspection of grave at Chorlton-cum-Hardy Old Church—1.

Building in the district during 1909.—The total number of houses certified as fit for habitation during the year ending December 31st, 1909, was 633, distributed as follows:—Withington (including Whalley Range), 250; Didsbury, 62; Chorlton-cum-Hardy, 209; and Burnage, 112. In all these the drains and other sanitary arrangements have been tested by the Inspector of New Buildings.

Report on the Administration of the Factory and Workshop Act, 1901, in so far as this Administration is in the hands of the Withington Committee, and is concerned with matters in the Department of the District Medical Officer of Health.

1.—*Workshops.*

The number of workshops now on the register is 538.

The cubic capacity of each workshop has been measured, and cards have been placed in each room showing the maximum number of workpeople allowed.

Attention has been given to the cleanliness and ventilation of the workshops.

In 86 cases the walls and ceilings of the workshops were found to be in a dirty condition, and verbal instructions were given by the Inspector to have the premises cleansed.

This request has, in each instance, been sufficient to cause the premises to be cleansed without legal notice.

In 18 workshops the sanitary accommodation was found to be unsatisfactory, and was reported by the Inspector to the Medical Officer of Health. In 5 instances there was no accommodation for the workmen. The owners of the premises have been served with a notice to provide sanitary accommodation.

In two cases certain defects existing in the closets were made good after legal notices had been served.

In the eleven remaining cases, certain defects existing in the closets were made good after verbal instructions being given, and legal notices have not been necessary.

In one instance overcrowding of the workshop was found, but the nuisance has been abated at once upon verbal instructions being given, fresh accommodation having been found.

2.—Bakehouses.

There are now on the register 44 bakehouses, which, on the whole, are kept in a clean and satisfactory condition. In 48 instances during the year it has been found necessary to call the attention of the occupiers to the state of the walls, etc., and to request them to have them cleansed. In all cases this has been done without legal notice.

All the bakehouses comply with the Act in not having any sanitary convenience or ashpit communicating directly with them; in not having any cistern for supplying water to them connected in any way with a water-closet; in having no drain openings inside; and in having no sleeping place connected with them.

The bakehouses are distributed over the district as follows:—

Chorlton-cum-Hardy	22
Withington	16
Didsbury	5
Burnage	1
	44

There are no cellar-bakehouses in the district.

3.—*Homework.*

Information with regard to persons in the district taking in homework from places of business outside the district has been received in 30 instances during the year. These premises have been inspected and registered, as in the case of other workshops. The number of visits paid during the year to premises in which homework has been carried on is 65. Two cases of infectious fevers have been notified during the year as occurring in connection with the premises occupied by homeworkers.

In three instances employers living in this district have been reported as giving out work to homeworkers who live in other districts. The names and addresses of these homeworkers have been sent to the sanitary authorities of the districts in which they live.

4.—*Workplaces.*

Under this heading the following are classified :—

New buildings in course of erection, 76 ; fish and game shops, 13 ; Cab-yards and stables, 11 ; slaughter-houses, 4—total 104.

In the case of new buildings, it was found that in 8 instances no sanitary accommodation existed for the workmen. A verbal request was sufficient to have satisfactory accommodation provided. In four instances the accommodation provided for the men was found to be unsatisfactory, but upon a verbal request being made the necessary alterations were carried out.

Total number of visits to workplaces during the year, 291.

5.—*Factories.*

There are 25 places in the Withington district in which mechanical power is used.

These are as follows :—

Laundries, 7 ; printers, 3 ; bootmakers, 2 ; joiners, 2 ; cycle makers, 2 ; motor garage, 3 ; bottling store, 1 ; brickworkers, 2 ; saw mill, 1 ; blacksmith, 1 ; and mechanics, 1. Total number of visits to factories during the year, 92.

Workshops.

Number of visits	Number in which Sanitary defects were found and reported to the Medical Officer of Health	Number of reports referred to Factory Inspector (unregistered workshops)	Number of cases in which Magisterial proceedings have been taken	Number registered during the year	Total number on register	Number of visits to houses where out-workers are employed	Factories and Workshops not provided with proper means of escape in case of fire
3048	18	6	0	47	538	65	0

Bakehouses.

Number of visits	Number in which Sanitary defects were found	Number of reports referred to Factory Inspector	Number of cases in which Magisterial proceedings have been taken	Number registered during the year	Total number on register
297	4	0	0	4	44

1.—Inspection.

Premises	Number of		
	Inspections	Written Notices	Prosecutions
Factories...	92	2	0
Workshops	2660	7	0
Workplaces	291	0	0
Homeworkers' Premises	65	0	0
Total	3108	9	0

2.—Defects Found.

Particulars	Number of Defects			No. of Prosecutions
	Found	Remedied	Referred to H.M. Inspector	
Nuisances under the Public Health Acts :—				
Want of cleanliness	134	134	0	0
Want of ventilation	2	2	0	0
Overcrowding	1	1	0	0
Sanitary Accommodation (Section 22 adopted)				
Insufficient	15	11	0	0
Defective	11	10	0	0
Not separate for Sexes...	2	1	0	0
Offences under the Factory and Workshop Act	14	14	0	0
	179	173	0	0

3.—Other Matters.

Class	Number	
Matters notified to H.M. Inspectors of Factories :—		
Failure to affix abstract of the Factory and Workshop Act (S. 133)	6	
Action taken in matters referred by H.M. Inspectors as remediable under the Public Health Acts but not under the Factory Act (S. 5)—		
Notified by H.M. Inspector	2	
Reports (of action taken) sent to H.M. Inspectors.	0	
Other	0	
Underground Bakehouses (S. 101) :—		
In use during 1903	8	
Certificate granted in 1908	0	
Certificate granted in 1909	0	
In use at the end of 1909	0	
Homework :—	Number of	
List of Outworkers (S. 107) :—	Lists	Outworkers
Lists received	2	30
Addresses of outworkers forwarded to other authorities		6
Addresses of outworkers received from other authorities		30
Homework in unwholesome or infected premises :—	Wearing Apparel	Other
Notices prohibiting homework in unwholesome premises (S. 108)	0	0
Cases of infectious disease notified in homeworker's premises	2	0
Orders prohibiting homework in infected premises (S. 110)	0	0
Workshops on the Register (S. 131) at the end of 1907 :—		
Dressmaking	114	
Bootmakers	57	
Joiners	32	
Plumbers	20	
Blacksmiths and Wheelwrights	6	
Decorators	15	
Millinery	44	
Ironmongers	8	
Cabinetmakers	15	
Tailors	22	
Bakers	44	
Laundries	12	
Hairdressers	13	
Monumental Masons	3	
Saddlers	4	
Printers	3	
Watchmakers	1	
Picture Framing	1	
Knitting	3	
Cycles and Motor Garage	10	
Bottling Stores	2	
Brickworks	2	
Workplaces	104	
Saw Mill	1	
Mechanics	1	
Paper Works	1	
Total number of Workshops on Register	538	

TABLES.

TABLE A.—MANCHESTER, 1909.

CAUSES OF DEATH AT DIFFERENT LIFE PERIODS IN THE 52 WEEKS OF THE YEAR.

PERSONS.—(MALES AND FEMALES.)

CAUSES OF DEATH	Ages at Death													
	All Ages	Under 5 Years		5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards
		0 to 1	1 to 5											
All Causes	11589	2442	1451	334	173	207	251	695	978	1288	1507	1472	671	120
A.—General Diseases	4381	1048	820	208	93	111	139	343	437	457	389	271	60	5
B.—Local Diseases	5969	848	544	101	67	81	103	315	484	768	1060	1058	463	77
C.—Other Specified Dis:	8	3	1	1	...	1	...	...	...	1	...	1	...	...
D.—Ill-defined Diseases	756	433	20	...	...	1	1	1	2	6	16	116	125	35
E.—Violent Deaths	475	110	66	24	13	13	8	36	55	56	42	26	23	3
A.—General Diseases.														
Smallpox.. Vaccinated	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Smallpox.. Not Vaccinated	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Smallpox.. No Statement	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cowpox	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chickenpox	2	1	1	...	...	...	...	...	...	...	...	...	...	...
Measles	396	86	275	33	...	1	...	1	...	...	...	...	...	...
Epidemic Rose Rash	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever..	164	3	100	39	11	2	1	8	...	...	...	...	...	...
Typhus	2	...	...	...	...	1	...	...	1	...	...	...	...	...
Plague	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Relapsing Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Influenza	135	4	4	2	2	3	5	13	18	23	25	27	8	1
Whooping Cough	129	45	76	8	...	...	...	...	...	...	...	...	...	...
Mumps	2	...	2	...	...	...	...	...	...	...	...	...	...	...
Diphtheria and Memb: Croup	113	7	83	18	4	1	...	...	...	...	...	...	...	...
Cerebro-spinal Fever	1	...	...	1	...	...	...	...	...	...	...	...	...	...
Simple Cont: Fever	1	...	...	1	...	...	...	...	...	...	...	...	...	...
Enteric Fever	88	1	5	9	5	9	7	25	12	13	2	...	...	...
Asiatic Cholera	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic Diarrhœa	202	157	40	2	1	...	...	...	...	1	1	...	...	...
Diarrhœa	64	42	4	1	...	...	...	...	2	5	1	4	5	...
Dysentery	2	...	1	...	...	...	...	...	...	...	1	...	...	...
Malarial Fever	1	...	...	...	...	...	...	1	...	...	...	...	...	...
Hydrophobia	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glanders	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Anthrax	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tetanus	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Syphilis	43	38	...	1	...	...	1	1	1	1	...	...	...	...
Gonorrhœa, Strict: Urethra	11	...	...	...	...	...	...	...	2	3	3	3	...	...
Puerperal.. Septicæmia	13	...	...	...	...	...	4	6	3	...	...	...	...	...
Puerperal.. Pyæmia	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal.. Phlegmasia Dol:	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Puerperal.. *Fever*	4	...	...	...	...	...	2	1	1	...	...	...	...	...
Infective Endocarditis	14	...	...	1	...	3	...	5	3	1	1	...	...	...
Epidemic Pneumonia / Pneumonic Fever	6	...	...	1	1	...	1	1	...	1	1	...	...	...
Erysipelas	16	4	2	...	...	1	...	1	2	2	2	2	...	...
Septicæmia (not puerp:)	14	3	3	1	...	...	1	2	1	1	2	...	...	...
Pyæmia (not puerp:)	5	1	...	1	1	1	...	...	...	...	...	1	...	...
Phlegmon	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phagedæna	1	...	...	...	...	...	...	...	...	1	...	...	...	...
Other Septic Diseases	12	1	...	1	...	...	1	2	...	3	2	2	...	...
Tubercular Phthisis	900	3	22	27	22	54	82	185	230	170	83	22	...	...
Phthisis	215	3	5	5	5	9	10	36	57	43	20	21	...	1

TABLE A, 1909—*continued.*

CAUSES OF DEATH	Ages at Death													
	All Ages	Under 5 Years		5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards
		0 to 1	1 to 5											
A.—General Diseases— *continued*														
Tubercular Meningitis	164	39	81	19	14	8	1	2	...	...	...	...	...	...
Tubercular Peritonitis	69	16	29	13	4	1	2	2	1	...	1	...	...	...
Tabes Mesenterica	14	6	6	1	1	...	...	...	...	...	...	...	...	...
Lupus	1	...	...	...	...	...	1	...	...	...	...	...	...	...
Tubercle of other organs	41	9	4	1	3	2	4	2	5	7	2	1	1	...
General Tuberculosis	84	26	20	13	8	4	2	3	4	2	...	1	1	...
Scrofula	1	...	...	...	...	...	...	...	...	...	1	...	...	...
Parasitic Diseases	1	...	...	...	...	1	...	...	...	...	...	...	...	...
Starvation	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scurvy	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alcoholism, Delirium Tremens	24	...	...	...	...	...	1	5	3	9	6	...	...	...
Opium, Morphia Habit	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ptomaine Poisoning	1	...	...	...	...	...	...	1	...	...	...	...	...	...
Industrial Poisoning: Lead	1	...	...	...	...	...	...	...	...	...	...	1	...	...
Industrial Poisoning: Phosphorus	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Industrial Poisoning: Arsenic, &c.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rheum: Fever, Acute Rheum:	33	1	...	3	5	4	3	5	8	3	1	...	...	...
Rheumatism of Heart	2	...	1	1	...	...	...	...	...	...	...	...	...	...
Chronic Rheumatism	29	...	...	1	...	...	3	1	5	2	8	6	2	1
Rheum: Arthritis, Rheum: Gout	15	...	...	...	...	...	...	...	1	2	4	8	...	...
Gout	5	...	...	...	...	...	...	...	1	...	2	1	1	...
Carcinoma	447	...	...	...	...	...	...	10	47	112	136	111	30	1
Sarcoma	40	...	1	...	2	2	1	8	3	10	8	4	1	...
"*Cancer*," Malignant Disease	119	...	...	...	...	...	1	2	10	22	42	32	9	1
Rickets	50	14	35	1	...	...	...	...	...	...	...	...	...	...
Purpura	8	2	1	...	...	1	...	1	2	...	...	1	...	...
Hæmophilia, Hæm: Diathesis	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Anæmia, Leucocythæmia	51	1	1	2	...	...	3	5	6	12	11	10	...	..
Diabetes Mellitus	72	...	2	...	4	3	1	8	8	8	23	13	2	..
Premature Birth	390	389	1	...	...	...	...	...	...	...	...	...	...	..
Congenital Defects	90	85	3	1	...	...	1	...	...	...	...	...	...	...
Injury at Birth	6	6	...	...	...	...	...	...	...	...	...	...	...	..
Atelectasis	27	27	...	...	...	...	...	...	...	...	...	...	...	...
Want of Breast Milk	6	6	...	...	...	...	...	...	...	...	...	...	...	...
Teething	33	22	11	...	...	...	...	...	...	...	...	...	...	...
B.—Local Diseases.														
1.–Nervous System.														
Inflammation of Brain	117	36	45	11	4	4	1	2	11	1	2	...	...	...
Softening of Brain	32	...	...	...	1	...	...	...	1	1	8	14	5	2
General Paraly: of Insane	59	...	...	...	1	...	1	6	24	19	6	1	1	...
Insanity (not puerperal)	120	...	...	...	...	1	1	9	19	16	33	30	11	...
Chorea	3	...	...	1	...	1	...	...	1	...	...	...	...	...
Epilepsy	31	...	2	...	5	1	5	6	6	5	...	1	...	...
Convulsions	104	85	18	1	...	...	...	...	...	...	...	...	...	..
Laryngismus Stridulus	11	4	7	...	...	...	...	...	...	...	...	...	...	...
Locomotor Ataxy	9	...	...	...	...	...	...	...	1	3	1	4	...	...
Dis: of Spinal Cord	27	1	...	...	...	...	1	1	3	8	7	6	...	...
Neuritis	16	...	...	...	...	1	...	1	4	8	1	1	...	...
Brain Tumour	20	1	...	2	1	...	1	4	6	3	1	1	...	...
Nervous System (other Dis:)	23	1	1	...	...	...	...	2	3	6	5	3	2	...
2. Diseases of Special Sense Organs.														
Otitis, Mastoid Disease	24	4	4	4	4	1	1	3	1	1	1	...	...	...
Epistaxis, Nose Disease	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Ophthalmia, Eye Disease	1	1	...	...	...	...	...	...	...	...	...	...	...	..

TABLE A, 1909—*continued.*

CAUSES OF DEATH	Ages at Death													
	All Ages	Under 5 Years		5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards
		0 to 1	1 to 5											
3. Diseases of Heart.														
Valvular Dis: Endocarditis	300	1	1	9	8	7	12	45	42	58	62	35	20	...
Pericarditis	11	...	...	...	...	...	1	4	3	...	1	1	1	...
Hypertrophy of Heart	2	...	...	...	...	...	...	...	...	1	...	1	...	...
Angina Pectoris	18	...	...	...	...	...	...	...	1	5	4	2	6	...
Dilatation of Heart	101	...	...	...	...	...	...	3	5	15	31	38	8	1
Fatty Degen: of Heart	28	...	...	...	...	...	...	...	1	3	7	14	2	1
Syncope, Heart Disease	751	4	1	5	6	8	8	27	59	98	158	222	133	22
4. Dis: of Blood Vessels.														
Cerebral Hæmorrhage	364	4	1	...	1	...	1	3	21	61	121	109	38	4
Apoplexy, Hemiplegia	88	...	1	...	...	...	...	...	3	23	24	24	11	2
Aneurism	30	...	...	...	...	...	...	3	5	11	4	6	1	...
Senile Gangrene	27	...	...	...	...	...	...	...	...	...	10	12	3	2
Embolism, Thrombosis	42	...	...	...	...	...	3	2	4	6	10	10	6	1
Phlebitis	3	...	...	...	...	...	1	...	...	1	1	...	...	...
Varicose Veins	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Blood Vessels (Other Diseases)	32	...	...	...	...	...	1	...	1	...	9	14	5	2
5. Dis: of Respiratory Sys:														
Laryngitis	18	6	9	...	1	...	...	...	1	1	...	...	...	...
Memb: Laryng: (Not Diphth:)	2	...	2	...	...	...	...	...	...	...	...	...	...	...
Croup	2	...	2	...	...	...	...	...	...	...	...	...	...	...
Larynx (Other Dis:)	3	...	1	...	...	...	...	...	1	...	1	...	...	...
Bronchitis	1,127	186	69	9	3	3	3	18	54	122	225	266	138	31
Pneumonia { Lobar	388	19	45	15	12	12	17	63	37	59	59	43	5	2
Pneumonia { Broncho	636	222	239	21	3	5	2	15	21	18	40	33	15	2
"*Pneumonia*"	282	34	36	8	1	10	14	21	30	45	41	31	10	1
Emphysema, Asthma	22	...	...	...	...	...	1	...	...	9	6	6	...	...
Pleurisy	30	2	...	1	1	...	...	5	3	4	6	6	2	...
Fibroid Disease of Lung	2	...	...	...	...	...	...	...	...	1	1	...	...	...
Respiratory Dis: (Other)	39	6	6	1	...	2	...	...	4	7	5	5	3	...
6. Dis: of Digestive Sys:														
Tonsillitis, Quinsy	2	...	1	..	...	...	...	1	...	...	...	...	...	...
Mouth, Pharynx	16	6	4	...	1	...	...	...	1	1	1	1	1	...
Gastric Ulcer	27	...	...	...	...	3	1	4	5	6	6	1	1	...
Gastric Catarrh	21	15	3	...	...	...	...	...	...	...	3	...	...	...
Stomach (Other Dis:)	59	32	5	1	...	...	...	2	2	1	6	6	3	1
Enteritis	104	80	12	2	...	1	...	...	...	1	3	4	1	...
Gastro-Enteritis	69	48	11	...	...	...	...	1	...	2	2	3	2	...
Appendicitis, Perityph:	33	...	2	4	6	5	3	4	3	4	1	1	...	...
Hernia	29	2	1	...	...	...	...	...	4	7	6	7	2	...
Intestinal Obstruct:	37	2	1	...	...	...	1	2	4	9	8	4	6	...
Other Diseases of Intestines	16	4	...	...	...	...	...	3	2	3	2	1	1	...
Peritonitis	17	...	...	...	3	2	2	2	3	3	...	2	...	...
Cirrhosis of Liver	67	...	...	...	1	...	...	1	12	22	26	5	...	...
Liver and Gall Bladder (O.D.)	44	17	3	...	...	...	1	1	3	5	5	7	2	...
Digestive System (Other Dis:)	18	8	1	1	1	...	...	2	1	2	1	1	...	...
7. Dis: of Lymphatic and Ductless Glands.														
Spleen, Disease of	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Lymphat: Syst: (Other Dis:)	9	...	...	2	1	1	...	4	...	...	...	1	...	...
Thyroid Body (Other Dis:)	6	...	...	...	...	2	...	2	2	...	...	...	...	...
Supra Renal Caps: (Dis: of)	5	...	...	...	...	...	...	1	2	...	1	1	...	...
8. Diseases of Urinary System.														
Nephritis Ac:, Uræmia	70	1	3	2	...	2	4	12	12	16	10	7	1	...
Ch: Bright's Dis: Albumin:	202	1	...	1	...	3	3	10	31	50	60	37	6	...
Calculus	9	...	...	...	...	...	...	1	1	1	4	1	1	...
Bladder and Prostate Dis:	34	...	...	...	...	...	1	...	3	2	7	13	7	1
Urinary Syst: (Other Dis:)	24	...	...	...	...	...	...	1	3	3	6	9	1	1

TABLE A, 1909—*concluded.*

CAUSES OF DEATH	All Ages	Under 5 Years: 0 to 1	Under 5 Years: 1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards
9. DISEASES OF GENERATIVE SYSTEM.														
Ovarian Tumour	3	...	...	...	...	...	...	...	...	2	...	1	...	...
Other Dis : of Ovary	5	...	...	...	...	...	...	...	1	2	1	1	...	...
Uterine Tumour	4	...	...	...	...	...	...	1	1	1	1	...	...	...
Other Dis: of Uterus and Vagina	3	...	...	...	...	...	1	...	...	...	1	1	...	...
Disord : of Menstruation	1	...	...	...	...	...	...	...	...	1	...	...	...	...
Gener: and Mam: Orgs: (other)	7	...	2	...	...	1	1	1	1	1	...	...	...	...
10. DISEASES OF PREGNANCY AND CHILDBIRTH.														
Abortion, Miscarriage	2	...	...	...	...	...	...	1	1	...	...	...	...	...
Puerperal Mania	1	...	...	...	...	...	1	...	...	...	...	...	...	...
Puerperal Convulsions	6	...	...	...	...	...	3	3	...	...	...	...	...	...
Placenta Præv: Flooding	10	...	...	...	...	1	1	3	5	...	...	...	...	...
Other Ac: of Preg: & Childbirth	16	...	...	...	...	2	4	6	4	...	...	...	...	...
11. DISEASES OF LOCOMOTOR SYSTEM.														
Caries, Necrosis	9	...	1	...	2	2	...	...	...	2	2	...	...	...
Arthritis, Periostitis	4	1	1	...	...	...	...	...	...	...	1	1	...	...
Locomotor Sys : (Other)	6	1	...	...	...	...	1	2	...	1	1	...	...	...
12. DISEASES OF THE SKIN.														
Ulcer, Bedsore	9	2	...	...	...	...	...	1	...	1	2	1	1	1
Eczema	4	3	1	...	...	...	...	...	...	...	...	...	...	...
Pemphigus	6	6	...	...	...	...	...	...	...	...	...	...	...	...
Skin Diseases (other)	8	2	1	...	...	...	...	...	...	...	2	2	1	...
C.—Other Specified Diseases	8	3	1	1	...	1	...	...	...	1	...	1	...	...
D.—Ill-defined and not Specified Diseases.														
Atrophy, Debility	457	414	20	...	...	...	...	1	1	2	4	8	7	...
Old Age	267	...	...	...	...	...	...	...	...	2	8	104	118	35
Dropsy, Ascites, Anasarca	2	1	...	...	...	...	...	...	...	1	...	...	...	...
Tumour	6	...	...	...	...	...	...	...	...	...	3	3	...	...
Abscess	2	...	...	...	...	1	...	...	...	...	1	...	...	...
Hæmorrhage	2	1	...	...	...	...	...	...	...	...	...	1	...	...
Sudden (cause unascertained)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Ill-defined	20	17	...	...	...	...	1	...	1	1	...	...	...	...
E.—Violent Deaths.														
1. ACCIDENT.														
In Mines and Quarries	4	...	...	...	...	...	2	...	...	1	1	...	...	...
By Vehicles { On Railways	4	...	...	...	...	...	...	2	...	1	1	...	...	...
By Vehicles { In Streets	19	...	5	3	2	...	...	...	2	2	4	1	...	...
Ships, Boats, Docks (not Drowning)	1	...	...	...	...	...	...	...	1	...	...	...	...	...
Building Operations	3	...	...	...	...	...	...	...	2	...	...	1	...	...
Machinery	8	...	...	...	...	...	...	1	2	4	1	...	...	...
Weapons and Implements	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Burns and Scalds	101	5	48	12	7	8	1	4	3	4	2	4	3	...
Poison, Poisonous Vapours	12	...	2	1	...	...	...	...	4	3	1	1	...	...
Drowning	28	2	1	5	1	1	1	6	2	4	4	...	1	...
Suffocation	113	100	3	...	...	1	...	...	4	2	3	...	...	...
Falls	91	1	4	1	2	1	1	4	10	16	14	17	18	2
Weather Agencies	...	...	...	...	...	...	...	...	...	...	..	...	...	...
Otherwise or not Stated	26	1	3	2	1	1	...	6	4	4	3	...	1	...
2. HOMICIDE.	5	1	...	...	...	...	...	1	3	...	...	...	...	...
3. SUICIDE.	60	...	...	..	...	1	3	12	18	15	8	2	...	1
4. EXECUTION.	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE B.—MANCHESTER, 1909.

Causes of Deaths at Different Life Periods—MALES.

Classes	CAUSES OF DEATH	All Ages Total	Ages at Death—in years: Under 5 Years 0 to 1	Under 5 Years 1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards
	All Causes	5926	1357	707	170	71	98	125	398	544	706	769	680	261	40
A	Smallpox	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Measles	213	51	143	18	...	...	...	1	...	...	...	...	...	...
	Scarlet Fever	82	2	46	22	5	2	...	5	...	...	...	...	...	...
	Typhus Fever	2	...	...	...	...	1	...	...	1	...	...	...	...	...
	Whooping Cough	46	20	22	4	...	...	...	...	...	...	...	...	...	...
	Diphtheria, Memb: Croup	45	1	37	7	...	...	...	...	...	...	...	...	...	...
	Ill-defined Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Enteric Fever	50	...	3	4	2	2	4	18	7	8	2	...	...	...
	Influenza	69	2	3	1	1	2	3	7	8	13	10	13	6	...
	Epidemic Diarrhœa	107	86	20	...	...	...	...	...	...	1	...	...	...	...
	Diarrhœa, Dysen., Simple Chol.	33	22	2	1	...	...	...	...	1	2	1	1	3	...
	Venereal Affections	36	24	...	...	...	...	...	1	3	2	3	3	...	...
	Erysipelas	8	3	2	...	...	...	...	...	...	1	1	1	...	...
	Pyæmia, Septicæmia	21	4	1	1	1	1	1	3	...	4	4	1	...	...
	Puerperal Fever ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Other Zymotics	2	1	1	...	...	...	...	...	...	...	...	...	...	...
	Tuberc. Periton: Tabes Mes:	43	14	20	4	1	1	1	...	1	...	1	...	...	...
	Tubercular Meningitis	77	18	34	13	7	4	...	1	...	...	...	...	...	...
	Phthisis	717	2	15	18	10	29	50	141	192	152	78	30	...	...
	Tuberculous Dis. (other)	71	22	10	8	6	6	3	4	4	3	2	2	1	...
	Parasitic Diseases	...	...	...	...	..	...	...	...	...	...	...	...	...	...
	Alcoholism	12	...	...	...	...	...	1	2	1	5	3	...	...	...
	Rheumatic Fever	19	1	...	3	1	2	1	3	6	2	...	...	...	...
	Cancer	266	...	...	...	2	1	1	6	21	71	82	64	18	...
	Premature Birth	209	209	...	...	...	...	...	...	...	...	...	...	...	...
	Congenital Defects	60	57	2	...	...	...	1	...	...	...	...	...	...	...
	Epilepsy	16	...	1	...	2	1	2	4	4	2	...	...	...	...
	Convulsions	60	49	10	1	...	...	...	...	...	...	...	...	...	...
	Nervous Syst: (other)	240	25	28	7	5	3	3	15	40	31	35	37	9	2
	Cereb: Haem: Apoplexy, Hemip:	199	2	1	...	1	...	1	1	11	39	64	57	22	...
	Heart and Blood Vessel Dis:	608	2	2	6	4	5	13	46	56	89	152	158	63	12
B and C	Croup	1	...	1	...	...	..	...	...	...	...	...	...	...	...
	Bronchitis	508	109	29	3	2	1	...	13	29	64	86	107	55	10
	Pneumonia	721	148	156	21	2	16	23	62	56	80	84	58	12	3
	Respiratory Dis: (other)	70	7	10	1	...	2	1	2	5	15	17	8	2	...
	Digestive Syst: (other)	285	128	22	6	4	3	2	12	16	32	39	16	4	1
	Urinary Syst: (other)	202	2	3	2	...	3	4	8	29	43	45	50	11	2
	Generative Organs	1	...	1	...	...	...	...	...	...	...	...	...	...	...
	Other specified Diseases	209	45	38	8	8	5	4	18	16	14	26	21	4	2
D	Marasmus and Atrophy	256	237	9	...	...	...	...	1	1	1	2	4	1	...
	Old Age	87	...	...	...	...	...	...	...	...	...	2	38	39	8
	Other Ill-defined Causes	14	8	...	...	...	1	...	...	1	..	2	2	...	...
E	Violence	218	55	35	11	7	7	4	14	21	22	23	8	11	...
	Homicide	4	1	...	...	...	...	...	1	2	...	...	...	...	...
	Suicide	39	...	...	...	...	...	2	9	12	10	5	1	...	...

TABLE C.—MANCHESTER, 1909.

Causes of Deaths at Different Life Periods—FEMALES.

Classes	CAUSES OF DEATH	All Ages Total	Ages at Death—in years: Under 5 Years 0 to 1	Under 5 Years 1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards
	All Causes	5663	1085	744	164	102	109	126	297	434	582	738	792	410	80
A	Smallpox	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Measles	183	35	132	15	...	1	...	...	...	...	...	...	...	...
	Scarlet Fever	82	1	54	17	6	...	1	3	...	...	...	...	...	...
	Typhus Fever	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Whooping Cough	83	25	54	4	...	...	...	...	...	...	...	...	...	...
	Diphtheria, Memb: Croup	68	6	46	11	4	1	...	...	...	...	...	...	...	...
	Ill-defined Fever	1	...	...	1	..	...	...	..	...	...	...	...	...	...
	Enteric Fever	38	1	2	5	3	7	3	7	5	5	...	...	...	...
	Influenza	66	2	1	1	1	1	2	6	10	10	15	14	2	1
	Epidemic Diarrhœa	95	71	20	2	1	...	...	...	...	...	1	...	...	...
	Diarrhœa, Dysentery, Simple Cholera	33	20	3	...	...	...	...	...	1	3	1	3	2	...
	Venereal Affections	18	14	...	1	...	...	1	...	...	2	...	...	...	...
	Erysipelas	8	1	...	...	...	1	...	1	2	1	1	1	...	...
	Pyæmia, Septicæmia	11	1	2	2	...	...	1	1	1	1	...	2	...	...
	Puerperal Fever	17	...	...	...	...	...	6	7	4	...	...	...	...	...
	Other Zymotics	1	...	...	...	...	...	...	1	...	...	...	...	...	...
	Tubercular Periton : Tabes Mes.	40	8	15	10	4	...	1	2	...	...	...	...	...	...
	Tubercular Meningitis	87	21	47	6	7	4	1	1	...	...	...	...	...	...
	Phthisis	398	4	12	14	17	34	42	80	95	61	25	13	...	1
	Tuberculous Diseases (other)	56	13	14	6	5	...	4	1	5	6	1	...	1	...
	Parasitic Diseases	1	...	...	...	...	1	...	...	...	...	...	...	...	...
	Alcoholism	12	...	...	...	...	...	...	3	2	4	3	...	...	...
	Rheumatic Fever	14	...	...	...	4	2	2	2	2	1	1	...	...	...
	Cancer	340	...	1	...	...	1	1	14	39	73	104	83	22	2
	Premature Birth	181	180	1	...	...	...	...	...	...	...	...	...	...	...
	Congenital defects	57	55	1	1	...	...	...	...	...	...	...	...	...	...
B and C	Epilepsy	15	...	1	...	3	...	3	2	2	3	...	1	...	...
	Convulsions	44	36	8	...	...	...	...	...	...	...	...	...	...	...
	Nervous System (other)	197	18	25	7	2	4	2	10	33	34	29	23	10	...
	Cerebral Hœmorrhage, Apoplexy, and Hemiplegia	253	2	1	...	...	...	...	2	13	45	81	76	27	6
	Heart and Blood Vessel Diseases	737	3	...	8	10	10	13	38	65	109	145	197	122	17
	Croup	1	...	1	...	...	...	...	...	...	...	...	...	...	...
	Bronchitis	619	77	40	6	1	2	3	5	25	58	139	159	83	21
	Pneumonia	585	127	164	23	14	11	10	37	32	42	56	49	18	2
	Respiratory Diseases (other)	46	7	8	1	2	...	...	3	4	7	2	9	3	...
	Digestive System (other)	274	86	22	2	8	8	6	11	24	34	31	27	15	...
	Urinary System (other)	137	...	...	1	...	2	4	16	21	29	42	17	5	...
	Generative Organs and Childbirth	57	...	1	...	...	4	11	15	13	7	3	3	...	...
	Other specified Diseases	195	29	26	7	4	9	6	17	16	18	34	26	3	...
D	Marasmus and Atrophy	201	177	11	...	...	...	...	...	...	1	2	4	6	...
	Old Age	180	...	...	...	...	...	...	...	...	2	6	66	79	27
	Other Ill-defined Causes	18	11	...	...	...	...	1	...	...	2	2	2	...	...
E	Violence	192	54	31	13	6	5	1	9	13	19	11	16	12	2
	Homicide	1	...	...	...	...	...	...	...	1	...	...	...	...	...
	Suicide	21	...	...	...	...	1	1	3	6	5	3	1	...	1
	Execution	...	...	...	...	...	...	...	...	...	...	...	...	...	...

TABLE D.

City of Manchester, 1909.—Causes of Death in Infancy and Childhood.

Causes of Death	Under One Year			Total under One Year	One and under Five Years				Total under Five Years
	Under 3 months	3–6 months	6–12 months		1–	2–	3–	4–	
All Causes	**1,319**	**457**	**666**	**2,442**	**744**	**327**	**220**	**160**	**3,893**
Measles	2	6	78	86	164	58	37	16	361
Scarlatina	...	...	3	3	19	28	22	31	103
Whooping Cough	5	14	26	45	33	17	13	13	121
Diphtheria (Memb: Croup)	...	1	6	7	23	21	21	18	90
Fever (various forms)	...	1	...	1	...	4	...	1	6
Diarrhœal Diseases	51	71	77	199	35	5	3	2	244
Syphilis	30	7	1	38	...	...	...	...	38
Tabes Mesenterica and Tuberc. Peritonitis	4	6	12	22	18	5	6	6	57
Tubercular Meningitis	1	12	26	39	29	23	19	10	120
Tuberculosis (other)	9	10	22	41	21	16	7	7	92
Premature Birth	388	1	...	389	1	...	...	...	390
Teething	...	1	21	22	10	1	...	...	33
Convulsions	54	15	16	85	9	5	3	1	103
Brain Diseases (other)	12	10	21	43	29	11	8	7	98
Lung Diseases	122	118	227	467	254	79	40	25	865
Atrophy, Marasmus	288	73	53	414	15	4	1	...	434
Found Dead in Bed (overlaid)	59	15	2	76	1	...	..	...	77
Suffocation	17	6	1	24	1	...	1	...	26
Violence (other forms)	4	3	3	10	12	18	19	14	73
Ill-defined Causes	17	2	...	19	...	...	...	...	19
Unclassified	256	85	71	412	70	32	20	9	543

TABLE E, 1881 TO 1909.—MANCHESTER.—ESTIMATED POPULATIONS. ANNUAL RATES OF MARRIAGES, BIRTHS, AND DEATHS *(a)* from all causes, and *(b)* from specified causes; also the percentages to total deaths of Inquest Cases, and of Deaths in Public Institutions; also the quinquennial averages from 1871–1906, with the average for same period.

	Years	Estimated Populations (Mean)	Persons Married	Annual Rates per 1,000 Persons living: Births	Deaths (All Causes)	Smallpox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Typhus Fever	Enteric Fever	Simple Continued Fever	Diarrhœa and Dysentery	English Cholera	Violence	Percentages to Total Deaths: Inquest Cases	Deaths in Public Institutions	Years	
Quinquennial Averages	1871–1875	477,344	24·6	38·9	28·3	0·26	0·64	1·08	0·08	0·78	0·14	0·43	0·21	1·92	0·03	0·94	7·2	13·4	1871–1875	Quinquennial Averages
	1876–1880	509,802	18·6	38·7	26·2	0·24	0·53	1·07	0·13	0·84	0·08	0·29	0·11	1·22	0·04	0·89	7·5	14·3	1876–1880	
	1881–1885	542,746	17·9	35·1	23·6	0·04	0·71	0·48	0·10	0·68	0·05	0·20	0·03	0·96	0·03	0·72	7·0	15·9	1881–1885	
	1886–1890	575,630	16·6	33·4	24·6	0·02	0·83	0·50	0·32	0·54	0·02	0·30	0·01	1·06	0·02	0·78	6·9	17·7	1886–1890	
	1891–1895	517,801	16·9	33·2	23·6	0·03	0·62	0·26	0·27	0·64	0·00	0·24	0·01	1·14	0·05	0·77	7·1	19·2	1891–1895	
	1896–1900	539,599	18·2	32·5	22·7	...	0·89	0·20	0·13	0·53	0·00	0·18	0·01	1·65	0·04	0·73	7·1	20·2	1896–1900	
	1901–1905	554,355	17·4	30·9	20·1	0·01	0·55	0·19	0·22	0·41	0·00	0·13	0·00	1·15		0·72	7·1	24·4	1901–1905	
Avge. 35 yrs.	1871–1905	527,154	18·8	35·3	24·8	0·10	0·70	0·60	0·17	0·67	0·05	0·27	0·06	1·32	0·03	0·80	7·1	16·8	1871–1905 Avge. 35 yrs	
	1881	530,051	17·8	35·9	22·8	0·03	0·29	0·34	0·09	0·71	0·03	0·17	0·06	0·73	0·02	0·84	8·1	15·9	1881	
	1882	536,324	18·8	35·7	24·0	0·05	0·89	0·34	0·11	0·87	0·10	0·25	0·04	1·00	0·03	0·67	7·2	14·5	1882	
	1883	542,671	17·8	34·9	24·4	0·01	0·71	0·81	0·11	0·62	0·05	0·20	0·03	0·95	0·03	0·73	7·0	15·5	1883	
	1884*	549,093	18·0	34·4	23·4	0·01	0·57	0·74	0·08	0·49	0·03	0·19	0·03	1·46	0·05	0·65	6·2	17·3	1884*	
	1885	555,591	17·0	34·8	23·6	0·08	1·08	0·17	0·10	0·71	0·04	0·17	0·01	0·64	0·02	0·69	6·4	16·4	1885	
	1886	562,166	16·4	34·7	24·1	0·00	0·27	0·41	0·15	0·57	0·03	0·29	0·01	1·34	0·04	0·71	7·2	17·0	1886	
	1887	568,819	16·6	33·9	25·4	0·01	1·54	0·63	0·23	0·50	0·02	0·31	0·01	1·19	0·02	0·77	6·9	16·1	1887	
	1888	575,550	16·0	33·3	23·3	0·07	0·27	0·42	0·36	0·79	0·02	0·33	0·02	0·71	0·01	0·74	6·7	18·3	1888	
	1889	582,362	17·0	33·1	24·2	0·00	1·22	0·45	0·51	0·45	0·01	0·31	0·01	1·00	0·03	0·89	6·5	18·2	1889	
	1890*	589,253	17·0	31·8	26·2	...	0·83	0·60	0·36	0·37	0·01	0·27	0·02	1·04	0·02	0·79	7·0	19·1	1890*	

TABLE E—*Continued*

Years	Estimated Populations (Mean)	Persons Married	Annual Rates per 1,000 Persons living: Births	Deaths (All Causes)	Smallpox	Measles	Scarlet Fever	Diphtheria	Whooping Cough	Typhus Fever	Enteric Fever	Simple Continued Fever	Diarrhœa and Dysentery	English Cholera	Violence	Percentages to Total Deaths: Inquest Cases	Deaths in Public Institutions	Years
1891†	‡ 508,673	17·2	33·8	26·0	...	0·43	0·22	0·25	1·02	0·01	0·37	0·01	0·81	0·04	0·79	6·8	18·4	1891†
1892†	‡ 513,196	17·2	33·4	23·2	0·00	0·72	0·27	0·25	0·72	0·00	0·24	0·01	0·79	0·02	0·77	7·4	18·2	1892†
1893†	‡ 517,760	16·0	33·4	24·3	0·09	0·57	0·27	0·35	0·46	0·00	0·25	0·01	1·75	0·10	0·76	6·9	18·7	1893†
1894†	‡ 522,365	16·8	31·8	19·8	0·04	0·42	0·22	0·29	0·55	...	0·17	0·01	0·70	0·02	0·75	7·5	21·3	1894†
1895†	‡ 527,010	17·4	33·4	24·5	0·00	0·96	0·33	0·21	0·47	...	0·18	0·01	1·66	0·06	0·80	6·9	19·2	1895†
1896†*	‡ 531,697	18·3	32·8	22·0	...	1·05	0·37	0·15	0·66	0·00	0·22	0·01	1·04	0·02	0·71	7·4	19·7	1896†*
1897†	‡ 536,426	17·8	32·9	22·4	...	1·17	0·23	0·08	0·56	0·00	0·18	0·00	1·74	0·06	0·68	6·6	20·0	1897†
1898†	‡ 541,296	18·3	32·3	21·2	...	0·50	0·12	0·09	0·31	...	0·22	0·01	1·96	0·06	0·69	7·0	19·5	1898†
1899†	‡ 546,010	18·4	32·2	23·9	...	1·28	0·08	0·16	0·42	0·00	0·13	0·01	2·02	0·03	0·78	7·0	19·7	1899†
1900†	‡ 542,566	18·0	32·4	23·8	...	0·47	0·19	0·19	0·68	...	0·14	0·01	1·49	0·03	0·78	7·4	21·9	1900†
1901†	‡ 546,408	17·6	28·7	21·6	...	0·53	0·23	0·24	0·41	0·02	0·14	0·00	1·86		0·78	7·9	23·2	1901†
1902†*	‡ 550,355	18·1	33·0	20·0	...	0·44	0·27	0·22	0·44	...	0·12	...	0·54		0·73	7·6	23·8	1902†*
1903†	‡ 554,331	17·8	31·7	19·5	0·04	0·62	0·17	0·25	0·38	...	0·17	0·00	0·91		0·72	7·0	25·3	1903†
1904†	‡ 558,335	16·5	31·1	20·9	0·02	0·76	0·15	0·18	0·50	...	0·12	0·00	1·36		0·73	5·9	24·6	1904†
1905§	‡ 631,933	17·0	29·0	17·8	...	0·37	0 12	0·20	0·31	...	0·09	0·01	1·15		0·59	6·7	24·1	1905§
1905‖	562,346	...	30·1	18·7	...	0·40	0·13	0·22	0·34	...	0·09	0 01	1·27		0·65	6·9	24·9	1905‖
1906§	637,520	18·0	28·9	19·0	...	0·75	0·17	0·19	0·30	...	0·13	0 00	1·54		0·62	7·3	25·4	1906§
1906‖	566,409	...	30·1	19·9	...	0·83	0·19	0·20	0·33	...	0·14	0 00	1·66		0·66	7·3	26·2	1906‖
1907§	643,158	18 3	28·4	17·9	...	0·36	0·16	0·16	0·49	...	0·06	0·00	0·45		0·67	8·0	26·5	1907§
1907‖	570,506	...	29·4	18·7	...	0·39	0·18	0·18	0.52	...	0·06	0·00	0·50		0·71	8·1	27·4	1907‖
1908§*	648,846	16·7	28·9	18·1	...	0·56	0·14	0·19	0·33	...	0·11	...	0 90		0.71	7·4	26·0	1908§*
1908‖*	574,637	...	30·0	18·8	...	0·60	0·16	0·20	0 35	...	0.12	...	0·99		0.76	7·6	27·0	1908‖*
1909§	654,584	...	27·5	17·7	...	0.60	0·25	0·17	0·20	0·00	0·13	0·00	0·41		0·73	7·3	29.6	1909§
1909‖	578,803	15·4	28·5	18·4	...	0·67	0·27	0·19	0·21	0·00	0·15	0·00	0·45		0·77	7·5	30·6	1909‖

* The facts for these years are for 53 instead of 52 weeks; corrections have, therefore, been made in calculating the rates.

† The populations and rates for the years subsequent to 1890, except the marriage rates, relate to the City of Manchester as enlarged by the Act of that year. The facts and rates for previous years are those for the three Unions of Manchester, Chorlton, and Prestwich, which have been taken to approximately represent "Manchester."

‡ These figures include a proportion of the inmates of certain Extra-municipal Institutions which receive patients from the City of Manchester, and are therefore in excess of the estimates of the Registrar-General.

§ Includes the newly amalgamated districts of Moss Side and Withington. ‖ Exclusive of Moss Side and Withington.

NOTE.—The population for 1900 is based on the Census figures of 8...

TABLE F, 1881 TO 1909.—MANCHESTER.
ANNUAL RATES OF MORTALITY FROM CERTAIN CAUSES OF DEATH.

YEAR	ANNUAL RATES PER 1,000 PERSONS LIVING										RATES PER 1,000 BIRTHS	
	Cancer	Tuber: Peritonitis Tabes Mes:	Phthisis	Other Tuber: Diseases	Diseases of Nervous System	Diseases of Circulatory System	Diseases of Respiratory System	Diseases of Digestive System	Diseases of Urinary System	Diseases of Generative System	Puerperal Fever	Childbirth
881–1885	0·50	0·35	2·42	0·57	3·28	1·37	5·41	1·23	0·48	0·08	3·03	1·99
886–1890	0·64	0·36	2·24	0·59	3·09	1·73	5·76	1·23	0·61	0·08	3·22	2·13
891–1895	0·62	0·22	2·09	0·75	1·74	2·53	5·56	1·07	0·52	0·07	2·75	3·42
896–1900	0·73	0·19	2·04	0·63	1·32	2·54	5·03	1·04	0·49	0·09	1·55	1·51
901-1905	0·80	0·16	1·94	0·55	1·17	2·56	4·29	0·95	0·49	0·08	1·21	1·76
881–1905	0·66	0·26	2·15	0·62	2·12	2·15	5·21	1·10	0·52	0·08	2·35	2·16
1881	0·48	0·28	2·46	0·52	3·33	1·19	5·57	1·24	0·39	0·07	3·15	1·37
1882	0·44	0·40	2·41	0·61	3·35	1·34	5·33	1·19	0·45	0·08	3·92	1·62
1883	0·54	0·34	2·54	0·59	3·32	1·33	5·66	1·20	0·50	0·06	2·27	1·58
*1884	0·51	0·39	2·34	0·56	3·27	1·44	4·88	1·23	0·59	0·10	2·81	2·55
1885	0·51	0·36	2·34	0·56	3·12	1·53	5·59	1·28	0·49	0·08	3·05	2·84
1886	0·56	0·43	2·44	0·59	3·30	1·53	5·43	1·26	0·57	0·08	2·67	1·85
1887	0·62	0·39	2·19	0·53	3·17	1·66	5·72	1·23	0·53	0·08	3·58	1·35
1888	0·65	0·31	2·14	0·62	3·19	1·72	5·31	1·16	0·62	0·10	4·12	1·77
1889	0·70	0·36	2·12	0·59	2·94	1·79	5·06	1·28	0·64	0·08	3·06	1·87
*1890	0·65	0·33	2·33	0·62	2·87	1·93	7·28	1·22	0·66	0·08	2·68	3·89
1891	0·63	0·25	2·20	0·78	2·30	2·69	6·77	1·03	0·55	0·07	3·08	4·01
1892	0·61	0·21	2·05	0·75	1·70	2·59	5·44	1·14	0·53	0·05	3·79	4·54
1893	0·59	0·26	2·05	0·76	1·70	2·48	5·53	1·20	0·53	0·07	3·70	3·94
1894	0·66	0·18	1·97	0·67	1·48	2·31	4·35	0·96	0·49	0·04	1·93	2·77
1895	0·63	0·22	2·16	0·77	1·51	2·60	5·73	1·04	0·49	0·11	1·25	1·82
*1896	0·66	0·13	2·00	0·60	1·33	2·53	5·19	1·04	0·46	0·11	0·96	1·47
1897	0·74	0·22	2·12	0·67	1·35	2·45	4·51	1·03	0·51	0·10	2·10	1·36
1898	0·73	0·19	1·95	0·67	1·22	2·15	4·27	1·00	0·54	0·09	1·72	1·54
1899	0·75	0·24	2·05	0·61	1·34	2·73	5·47	0·99	0·47	0·10	1·37	1·54
1900	0·76	0·17	2·09	0·60	1·37	2·82	5·78	1·15	0·48	0·05	1·59	1·65
1901	0·78	0·20	2·09	0·83	1·22	2·55	4·48	1·00	0·49	0·03	2·17	1·72
*1902	0·79	0·16	2·08	0·55	1·13	2·61	4·71	0·93	0·58	0·11	0·94	1·65
1903	0·76	0·18	1·85	0·58	1·25	2·46	3·95	0·99	0·46	0·08	0·80	1·59
1904	0·81	0·15	1·98	0·54	1·17	2·71	4·38	1·02	0·50	0·09	1·04	2·13
1905	0·86	0·12	1·56	0·48	1·06	2·47	3·70	0·81	0·41	0·09	1·09	1·80
§1905	0·86	0·13	1·68	0·50	1·10	2·49	3·94	0·83	0·42	0·10	1·12	1·71
1906	0·88	0·14	1·71	0·49	1·06	2·68	3·52	0·91	0·47	0·07	1·63	1·63
§1906	0·89	0·15	1·81	0·52	1·09	2·69	3·75	0·95	0·46	0·08	1·76	1·70
1907	0·77	0·15	1·70	0·41	1·01	2·53	4·30	0·80	0·56	0·07	1·09	1·26
§1907	0·78	0·16	1·80	0·44	1·04	2·56	4·58	0·83	0·55	0·07	1·07	1·19
1908	0·89	0·12	1·65	0·47	0·96	2·52	3·91	0·87	0·59	0·06	1·16	1·31
§1908	0·87	0·12	1·74	0·47	0·97	2·55	4·19	0·89	0·58	0·06	1·14	1·37
1909	0·93	0·13	1·70	0·44	0·87	2·75	3·90	0·85	0·52	0·09	0·94	1·94
§1909	0·91	0·13	1·81	0·45	0·90	2·75	4·14	0·86	0·51	0·10	0·97	2·06

* The facts for these years are for 53 instead of 52 weeks; corrections have therefore been made calculating the rates.

† The rates of mortality for the years subsequent to 1890 refer to the City of Manchester as arged by the Act of that year. The rates for 1890 and for previous years are those for the three Unions Manchester, Chorlton, and Prestwich, which have been taken to approximately represent "Manchester."

‖ Includes the newly amalgamated districts of Moss Side and Withington.

§ Exclusive of Moss Side and Withington.

TABLE G, 1909.—POPULATION, AREA, DENSITY. TOTAL BIRTHS AND DEATHS WITH BIRTH AND DEATH RATES.

[INSTITUTION POPULATIONS, BIRTHS AND DEATHS, DISTRIBUTED.]

STATISTICAL DIVISIONS		* Estimated Population	Area in Acres	Persons to an Acre	BIRTHS		DEATHS		Natural Rate of Increase	Mean Death Rate 1891-1900	Percentage
					Total	Rate per 1,000	Total	Rate per 1,000			
City of Manchester		654,584	19,059	34	18,016	27·52	11,589	17·70	9·82	23·27	
I. Manchester Township		123,765	1,646	75	3,808	30·77	3,032	24·50	6·27	30·10	
II. North Manchester		202,846	7,321	28	5,549	27·36	2,920	14·40	12·96	18·30	
III. South Manchester		327,973	10,092	33	8,659	26·40	5,637	17·19	9·21	22·32	
I.	Ancoats	43,139	400	108	1,397	32·38	1,072	24·85	7·53	30·25	1
	Central	24,172	748	32	655	27·10	612	25·32	1·78	31·01	1
	St. George's	56,454	498	115	1,756	31·10	1,348	23·88	7·22	29·52	1
II.	Cheetham	43,024	919	47	1,160	26·96	481	11·18	15·78	14·61	2
	Crumpsall	9,483	733	13	203	21·41	127	13·39	8·02	15·19	1
	Blackley	9,937	1,840	5	288	28·98	193	19·42	9·56	18·10	–
	Harpurhey	24,546	193	127	486	19·80	292	11·90	7·90	19·20	3
	Moston	22,413	1,297	17	596	26·59	232	10·35	16·24	14·27	2
	Newton Heath	39,423	1,350	29	1,130	28·66	712	18·06	10·60	19·61	
	Bradford	25,503	288	89	818	32·07	464	18·19	13·88	23·50	2
	Beswick	12,679	96	132	445	35·10	226	17·82	17·28	20·30	1
	Clayton	15,838	605	26	423	26·71	193	12·19	14·52	17·24	2
III.	Ardwick	45,841	509	90	1,185	25·85	756	16·49	9·36	21·78	2
	Openshaw	29,247	581	50	914	31·25	571	19·52	11·73	21·69	1
	West Gorton	32,699	318	103	931	28·47	502	15·35	13·12	21·56	2
	Rusholme and Kirk.	27,325	1,412	19	880	32·20	430	15·74	16·46	16·13	
	Chorlton-upon-Med.	55,190	646	85	1,180	21·38	1,025	18·57	2·81	21·38	1
	Hulme	61,890	477	130	2,054	33·19	1,409	22·77	10·42	25·48	1
	Moss Side	28,717	421	68	590	20·55	440	15·32	5·23	...	
	Withington	47,064	5,728	8	925	19·65	504	10·71	8·94	...	

* NOTE.—Calculated on the Census of 1891 and 1901.

TABLE H, 1909.

BIRTHS REGISTERED IN THE CITY OF MANCHESTER, IN ITS MAIN DIVISIONS AND IN DISTRICTS; DISTINGUISHING LEGITIMATE AND ILLEGITIMATE BIRTHS; ALSO THE PROPORTION OF MORTALITY AMONG INFANTS OF BOTH CLASSES UNDER ONE YEAR OF AGE.

STATISTICAL DIVISIONS		BIRTHS		Percentage of Illegitimate Births to Total Births	DEATHS UNDER 1 YEAR		PROPORTION OF DEATHS UNDER 1 YEAR PER 1,000 BIRTHS			Deaths under 1 Year per 1000 Births in the 10 years, 1899 to 1908
		Total	Illegitimate		Total	Of Illegitimate Children	Total	Legitimate	Illegitimate	
City of Manchester ...		18,016	706	3·9	2,442	191	136	130	271	175
I.	Manchester Township	3,808	173	4·5	641	58	168	160	335	207
II.	North Manchester ...	5,549	141	2·5	705	37	127	124	262	150
III.	South Manchester ...	8,659	392	4·5	1,096	96	127	121	245	174
I.	Ancoats	1,397	46	3·3	248	13	178	174	283	204
	Central	655	49	7·5	107	17	163	149	347	217
	St. George's.....	1,756	78	4·4	286	28	163	154	359	205
II.	Cheetham.....	1,160	29	2·5	104	9	90	84	310	104
	Crumpsall.....	203	9	4·4	20	2	99	93	222	126
	Blackley	288	11	3·8	38	3	132	126	273	126
	Harpurhey	486	12	2·5	67	4	138	133	333	158
	Moston.....	596	9	1·5	56	...	94	95	...	130
	Newton Heath.....	1,130	34	3·0	169	11	150	144	324	167
	Bradford	818	22	2·7	122	5	149	147	227	187
	Beswick	445	7	1·6	80	3	180	176	429	169
	Clayton.....	423	8	1·9	49	...	116	118	...	187
III.	Ardwick	1,185	49	4·1	180	15	152	145	306	174
	Openshaw	914	24	2·6	135	2	148	152	83	181
	Gorton (West)	931	27	2·9	131	11	141	133	407	179
	Rusholme and Kirk.	880	37	4·2	65	3	74	74	81	118
	Chorlton-on-Med....	1,180	111	9·4	162	24	137	129	216	178
	Hulme	2,054	85	4·1	295	31	144	134	365	185
	Moss Side	590	35	5·9	57	4	97	95	114	.
	Withington.....	925	24	2·6	71	6	77	72	250	...

TABLE J, 1909.

Infantile Mortality in the City, and its Three Main Divisions.

Death-rates under One Year per 1,000 Births.

Causes of Death	City of Manchester	Manchester Township	North Manchester	South Manchester
All Causes	135·55	168·33	127·05	126·57
Measles	4·77	6·57	3·24	4·97
Whooping Cough	2·50	1·31	2·16	3·23
Other Com: Infectious Diseases†	0·61	0·79	0·54	0·58
Diarrhœal Diseases	11·06	18·91	9·91	8·31
Tubercular Diseases‡	5·66	4·99	2·52	7·97
Convulsions	4·72	3·93	6·31	4·04
Other Nervous Diseases§	2·39	2·10	3·24	1·96
Lung Diseases	26·38	39·65	21·99	23·33
Premature Birth	21·59	25·47	23·79	18·48
Atrophy, &c. ‖	22·98	29·67	24·33	19·17
Suffocation	1·72	2·89	1·98	1·04
Found dead in bed (overlaid)	4·22	6·04	2·70	4·39

† These are Smallpox, Scarlatina, Diphtheria, Membranous Croup, and various forms of "Fever," including the chief forms of Typhus and Typhoid.

‡ These are Phthisis, Tubercular Meningitis (Hydrocephalus), Tabes Mesenterica, and General Tuberculosis (Scrofula).

§ These are Meningitis, and other diseases of the Brain and Spinal Cord.

‖ These are such ill-defined causes as Atrophy, Marasmus, Debility, Inanition, &c.

TABLE K, 1909.—CITY OF MANCHESTER. ANNUAL RATES OF MORTALITY PER 1,000 PERSONS LIVING AT ALL AGES, IN THE CITY OF MANCHESTER AND IN ITS STATISTICAL DIVISIONS, FROM CERTAIN DISEASES AND GROUPS OF DISEASES.

CAUSES OF DEATH	City of Manchester	City—exclusive of Moss Side and Withington	Manchester Township	North Manchester	South Manchester	South—exclusive of Moss Side and Withington	City of Manchester exclusive of Withington and Moss Side Average of 10 years 1899-1908
All Causes	17·70	18·39	24·50	14·40	17·19	18·61	19·79
Smallpox	...	...	...	...	...	...	...
Measles	0·60	0·67	0·93	0·46	0·57	0·72	0·51
Scarlet Fever	0·25	0·27	0·25	0·28	0·23	0·28	0·17
Typhus Fever	0·00	0·00	0·00	...	...	...	0·00
Influenza	0·21	0·19	0·19	0·15	0·25	0·21	0·21
Whooping Cough	0·20	0·21	0·15	0·15	0·24	0·28	0·40
Diphtheria and Memb: Croup.	0·17	0·19	0·19	0·15	0·18	0·21	0·19
Ill-defined Fever	0·00	0·00	...	...	0 00	0·00	0·00
Enteric Fever	0·13	0·15	0·22	0·11	0·12	0·14	0·12
Diarrhœal Diseases	0·41	0·45	0 82	0·35	0·30	0·36	1·27
Puerperal Fever	0·03	0·03	0·03	0·02	0·02	0·03	0·04
Erysipelas	0·02	0·03	0·02	0·02	0·03	0·03	0·04
Pyæmia, Septicæmia	0·05	0·05	0·05	0·05	0·05	0·06	0·04
Phthisis (Tuberc: Pulmon:)	1·70	1·81	3·18	0·89	1·65	1·88	1·92
Tubercular Meningitis	0·25	0·26	0·34	0·22	0·24	0·26	0·26
Tuberc: Periton: Tabes Mes:	0·13	0·13	0·09	0·09	0·16	0·19	0·17
Tuberculous Dis: (other)	0·19	0·19	0·29	0·11	0·21	0·21	0·30
Alcoholism	0·04	0·04	0·06	0·02	0·04	0·04	0·12
Cancer	0·93	0·91	0·94	0·85	0·97	0·95	0·81
Rheumatic Fever	0·05	0·05	0·02	0·05	0·06	0·06	0·06
Premature Birth	0·60	0·63	0·78	0·65	0·49	0·54	0·66
Nervous Diseases	0·87	0·90	1·14	0·77	0·84	0·89	1·17
Heart and Blood Vessels Diseases	2·75	2·75	3·01	2·33	2·91	2·97	2·62
Bronchitis	1·72	1·85	3·09	1·35	1·44	1·65	2·04
Pneumonia	2·00	2·11	3·25	1·52	1·81	2·03	2·24
Respiratory Diseases (other)	0·18	0·18	0·19	0·16	0·19	0·19	0·25
Digestive Organs (Diseases of)	0·85	0·86	0·94	0·65	0·95	1·00	0·96
Urinary Organs (Diseases of)	0·52	0·51	0·68	0·37	0·55	0·54	0·50
Old Age	0·41	0·41	0·49	0·41	0·38	0·37	0·42

TABLE I., 1909.

MANCHESTER.—Certification of the Causes of Death in the Main Divisions and in Districts.

STATISTICAL DIVISIONS.	Total Deaths	Certified by		Not Certified	Proportion per cent. of Deaths		
					Certified by		
		Registered Medical Practitioners	Coroner		Regist'd Medical Prac-titioners	Coroner	Not Certifie
City of Manchester	**11,589**	**10,646**	**845**	**98**	**91·8**	**7·3**	**0·8**
I. Manchester Township ...	3,032	2,736	263	33	90·3	8·7	1·1
II. North Manchester	2,920	2,703	190	27	92·6	6·5	0·9
III. South Manchester	5,637	5,207	392	38	92·4	6·9	0·7
I. Ancoats	1,072	982	82	8	91·6	7·7	0·7
I. Central	612	535	72	5	87·4	11·8	0·8
I. St. George's	1,348	1,219	109	20	90·4	8·1	1·5
II. Cheetham	481	445	29	7	92·5	6·0	1 5
II. Crumpsall	127	119	8	...	93·7	6·3	...
II. Blackley	193	179	12	2	92·7	6·2	1·0
II. Harpurhey	292	264	25	3	90·4	8·6	1·0
II. Moston	232	218	12	2	93·9	5·2	0·9
II. Newton Heath	712	654	50	8	91·9	7·0	1·1
II. Bradford	464	434	28	2	93·5	6·0	0·4
II. Beswick	226	210	13	3	92·9	5·8	1·3
II. Clayton	193	180	13	...	93·2	6·7	...
III. Ardwick	756	700	56	...	92·6	7·4	...
III. Openshaw	571	530	39	2	92·8	6·8	0·4
III. Gorton (West)	502	450	51	1	89·6	10·2	0·2
III. Rusholme and Kirk. ...	430	403	26	1	93·7	6·0	0·2
III. Chorlton-upon-Medlock	1,025	939	79	7	91·6	7·7	0·7
III. Hulme	1,409	1,304	90	15	92·5	6·4	1·1
III. Moss Side	440	416	17	7	94·5	3·9	1·6
III. Withington	504	465	34	5	92·3	6·7	1·0

TABLE M, 1909—City of Manchester.—Annual Rates of Mortality at six groups of ages, * per 1,000 living at those age groups, from certain prevalent diseases, and groups of diseases; also the Average Rates of Mortality for the years 1899-1908.

Causes of Death	Under 5 Years		5 to 14 Years		15 to 24 Years		25 to 44 Years		45 to 64 Years		65 Years and upwards	
	Average 1899-1908	1909	Average 1899-1908	1909	Average 1899-1908	1909	Average 1899-1908	1909	Average 1899-1908	1909	Average 1899-1908	1909
All Causes	68·11	52·14	3·73	3·86	4·03	3·38	9·84	8·36	32·36	30·10	108·37	113·85
Smallpox	0·01	...	...	...	0·01	...	0·01	...	0·01	...	0·01	...
Measles	4·92	4·84	0·13	0·25	0·01	0·01	...	0·00	...	...	...	...
Scarlatina	0·94	1·38	0·25	0·38	0·02	0·02	0·01	0·04	...	...	...	...
Diphtheria, Memb. Croup	1·13	1·21	0·28	0·17	0·01	0·01	0·01	...	...	...	...	...
Whooping Cough	3·48	1·62	0·07	0·06	...	...	...	...	...	...	...	...
Fever — Typhus	...	...	...	...	...	0·01	...	0·00	...	...	...	...
Fever — Enteric	0·03	0·08	0·07	0·11	0·17	0·12	0·18	0·18	0·10	0·16	0·03	...
Fever — Continued	0·01	...	...	0·01	...	...	...	...	0·01	...	0·01	...
Diarrhœal Diseases	9·85	3·27	0·03	0·03	0·01	...	0·02	0·01	0·14	0·10	0·93	0·45
Tubercular Diseases	4·33	3·60	0·89	1·03	1·50	1·33	3·13	2·63	4·02	3·54	2·14	2·41
Malignant Diseases	0·03	0·01	0·01	0·02	0·05	0·03	0·47	0·40	3·29	3·56	6·94	9·51
Diseases of ... Nervous System	4·25	2·69	0·28	0·21	0·19	0·13	0·58	0·55	1·71	1·44	5·00	4·13
Diseases of ... Heart and Blood Vessels	0·36	0·17	0·27	0·22	0·46	0·31	1·29	1·16	7·86	7·80	32·16	38·08
Diseases of ... Respiratory System	14·57	11·84	0·51	0·58	0·59	0·51	1·75	1·36	7·87	7·00	29·74	30·14
Diseases of ... Digestive System	3·48	3·46	0·20	0·15	0·23	0·14	0·45	0·31	1·60	1·47	3·11	3·17
Diseases of ... Urinary System	0·21	0·07	0·07	0·03	0·10	0·10	0·39	0·37	1·52	1·71	3·77	4·28
Other Diseases	20·55	17·91	0·67	0·62	0·70	0·67	1·76	1·32	5·53	3·33	27·32	21·68

* For death-rates at all ages, see Table K.

TABLE N, 1909—ANNUAL RATES OF MORTALITY IN STATISTICAL DIVISIONS AT SIX GROUPS OF AGES, *PER 1,000 LIVING AT THOSE AGE GROUPS, FROM CERTAIN PREVALENT DISEASES, AND GROUPS OF DISEASES.

CAUSES OF DEATH	Under 5 Years			5 to 14 Years			15 to 24 Years		
	Manchester Township	North Manchester	South Manchester	Manchester Township	North Manchester	South Manchester	Manchester Township	North Manchester	South Manchester
All Causes	71·31	42·50	51·06	4·69	3·48	3·78	4·86	2·73	3·24
Smallpox	...	...	...	...	...	...	...	..	...
Measles	7·55	3·31	4·79	0·20	0·20	0·30	...	...	0·01
Scarlatina	1·24	1·60	1·28	0·52	0·34	0·35	...	...	0·04
Diphtheria, Memb. Croup	1·37	0·92	1·34	0·16	0·16	0·18	...	...	0·01
Whooping Cough	1·17	1·16	2·14	0·08	0·05	0·06	...	...	...
Fever — Typhus	...	...	...	...	..	...	0·04	...	...
Fever — Enteric	0·14	0·04	0·09	0·20	0·11	0·06	0·24	0·09	0·09
Fever — Continued	...	...	...	...	...	0·02	...	...	...
Diarrhœal Diseases	6·45	2·43	2·54	0·04	0·05	0·02	...	...	...
Tubercular Diseases	3 98	1·96	4·62	1·47	0·84	0·99	1·95	0·92	1·35
Malignant Disease	...	...	0·03	...	0·02	0·02	0·04	0·02	0·03
Diseases of — Nervous System	3·09	2·83	2·43	0·28	0·20	0·18	0 08	0·16	0·13
Diseases of — Heart & Blood Vess:	0·14	0·16	0 20	0·28	0·16	0·24	0·56	0·23	0·26
Diseases of — Respiratory System.	18·73	8·86	11·13	0·71	0·57	0·53	0·80	0·49	0·41
Diseases of — Digestive System	4·32	2·47	3 80	0·04	0·14	0 21	0·16	0·07	0·18
Diseases of — Urinary System	0·21	...	0·06	0·04	...	0·03	0·12	0·14	0·06
Other Diseases	22·92	16·76	16·64	0·68	0·64	0·59	0·88	0·59	0·65

CAUSES OF DEATH	25 to 44 Years			45 to 64 Years			65 Years and upwards		
	Manchester Township	North Manchester	South Manchester	Manchester Township	North Manchester	South Manchester	Manchester Township	North Manchester	South Manchester
All Causes	13 10	6·13	7·99	41·81	25·59	28·07	130·16	106·62	111·53
Smallpox	...	...	...	...	...	...	...	...	...
Measles	...	0·02	...	...	...	...	...	..	...
Scarlatina	...	0 02	0·07	...	...	...	...	...	...
Diphtheria, Memb. Croup	...	...	...	...	...	...	...	...	...
Whooping Cough	...	...	...	...	...	...	...	...	...
Fever — Typhus	0·03	...	...	...	...	...	...	...	...
Fever — Enteric	0·25	0·15	0·18	0·27	0 12	0 14	...	...	...
Fever — Continued	...	...	...	...	...	...	...	...	...
Diarrhœal Diseases	...	0·02	0·01	0·22	0 08	0 06	0·52	0·77	0·28
Tubercular Diseases	4·99	1·51	2·46	6·81	1·86	3·20	7 79	0·19	1·57
Malignant Disease	0·58	0·35	0·37	3·30	3·84	3·51	8 57	9·59	9·80
Diseases of — Nervous System	0·74	0·45	0·54	2·16	0·85	1·48	5·20	3·84	3·88
Diseases of — Heart & Blood Vess:	1·75	0·98	1·06	9·08	7·64	7·40	30·40	37·39	41·15
Diseases of — Respiratory System.	2·30	1·13	1·17	12·21	5·62	5·75	48·58	25·69	25·71
Diseases of — Digestive System	0·27	0·27	0·36	1·67	1 20	1·53	1·82	2·49	3·98
Diseases of — Urinary System	0·58	0·23	0·38	1·89	1·63	1·69	5·46	2·63	4·62
Other Diseases	1·62	1·03	1·39	4·21	2 75	3·30	21 82	23·97	20·53

* For death-rates at all ages, see Table K.

TABLE O, 1909.—PARTICULARS AS TO MANCHESTER PATIENTS UNDER TREATMENT IN THE SEVERAL FEVER HOSPITALS DURING THE YEAR; ALSO OF PATIENTS FROM OUTSIDE DISTRICTS SENT TO MONSALL AND CLAYTON DURING THE SAME PERIOD.

Disease	Hospital	In Hospital commencement of year	Admitted	Discharged	Died	Remaining in Hospital close of year
Smallpox	Clayton Hospital	...	...	...	...	...
	Total	...	...	...	...	...
Scarlet Fever	Monsall	255	1,945	1,804	112	284
	Baguley Sanatorium	28	345	313	8	52
	Other Hospitals	...	30	27	3	...
	Total	283	2,320	2,144	123	336
Diphtheria	Monsall	19	311	248	59	23
	Baguley Sanatorium	4	42	39	2	5
	Other Hospitals	...	8	4	4	...
	Total	23	361	291	65	28
Enteric Fever	Monsall	46	225	216	43	12
	Baguley Sanatorium	...	...	...	...	...
	Other Hospitals	...	71	54	17	...
	Total	46	296	270	60	12
Typhus Fever	Monsall	...	19	18	1	...
	Baguley Sanatorium	...	...	...	...	...
	Other Hospitals	...	...	...	...	...
	Total	...	19	18	1	...
Other Acute Diseases	Monsall	30	254	246	26	12
	Baguley Sanatorium	...	3	3	...	...
	Other Hospitals	...	9	9	...	...
	Total	30	266	258	26	12
All Diseases		382	3,262	2,981	275	388

PATIENTS SENT TO MONSALL OR CLAYTON, FROM DISTRICTS OUTSIDE THE CITY DURING THE YEAR 1909.

Disease	Northern Hospital	Swinton Schools	Royal Infirmary	Pendlebury Hospital	Barnes' Convales. Hospital	Ancoats Hospital	Outside Districts
Smallpox	...	...	...	...	...	...	...
Scarlatina	2	4	1	14	1	...	19
Diphtheria	...	...	1	4	...	...	10
Enteric Fever	...	...	1	1	...	...	9
Other Diseases	...	...	6	1	2	...	8

Total, 84

TABLE P, 1909.—Work of Sanitary Department for the Year.

	TOWNSHIPS																						
	Ancoats	Central	St. George's	Cheetham	Crumpsall	Blackley	Harpurhey	Moston	Newton	Bradford	Beswick	Clayton	Ardwick	Openshaw	Gorton (West)	Rusholme and Kirkmanshulme	Chorlton-upon-Medlock	Hulme	Moss Side	Withington	Levenshulme (Incorporated Nov. 1909)	Gorton (Incorporated Nov. 1909)	TOTALS
Complaints to Sanitary Superintendent ...	74	500	293	580	9	55	50	1	117	190	7	31	143	28	3	128	460	362	175	...	13	...	3,213
Inspections of: Dwelling-houses	3807	4530	6396	4725	964	988	2064	1484	2839	1777	1392	518	3602	2228	1802	1850	4913	4842	4632	...	57	199	55,609
Newly-infected Dwelling-houses	292	182	349	439	137	80	112	114	299	154	119	108	318	338	218	306	325	517	235	...	20	41	4,703
Cellars	...	..	5	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	6
Schools	5	2	7	2	1	...	...	...	1	...	11	...	3	1	3	15	1	3	1	...	...	...	56
Factories and Workshops	33	22	32	97	1	...	...	1	15	7	8	2	10	3	...	21	16	18	1	...	...	2	289
Lodging-houses	735	1640	1065	916	2	...	...	13	9	7	9	...	15	2	4	2	373	599	...	...	...	...	5,391
Offensive Trades	2	170	203	6	9	9	5	23	121	3	...	2	13	4	...	44	7	16	...	...	...	2	639
Dairies and Milkshops	116	157	195	116	24	40	54	61	59	76	40	20	154	163	66	109	263	422	64	...	...	1	2,200
Ice Cream Manufactories	725	35	67	10	...	...	1	3	16	1	...	1	3	12	12	3	34	177	1	...	...	...	1,101
Bakehouses	110	152	103	317	10	60	123	44	49	24	14	34	73	71	66	125	228	260	226	...	28	16	2,133
Canal Boats	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,095
Slaughter-houses	...	85	5	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	94
Tips for Refuse	..	...	...	6	...	...	...	1	1	...	...	...	...	...	...	2	...	...	...	...	1	...	41
Miscellaneous Inspections	340	1853	1475	151	192	109	170	53	150	230	111	89	598	121	59	443	1881	1254	75	...	208	6	9,568
Factories and Workshops by Shop Hours, &c., Inspectors	942	6232	1163	2724	18	55	209	93	210	97	87	56	395	238	248	479	1480	845	384	...	61	76	16,040
Shops by Shop Hours, &c., Inspectors	413	1635	518	1437	36	69	163	9	184	50	41	14	177	178	161	346	533	372	219	...	116	82	6,753
Infected Rooms Disinfected	814	613	619	878	479	388	729	372	867	394	483	316	1026	1021	777	1104	1119	1408	1062	...	51	48	14,568
Infected Dwellings Re-inspected	1041	466	827	984	486	267	411	296	1171	328	686	230	390	629	439	737	685	715	354	...	90	90	11,322
Drains Tested by Water	984	437	1866	839	74	91	133	65	1174	676	428	36	1184	407	132	307	1762	2289	1060	...	6	11	13,961
Smoke Abatement: Observations made	26	40	25	16	15	25	1	218	38	85	1	44	30	44	30	8	32	22	4	5	...	1	710
Smoke Abatement: Proceedings before Magistrates	8	8	9	2	6	9	...	2	8	9	1	19	13	13	10	1	9	2	1	2	..	...	132
Food Adulteration: Samples Collected for Analysis	175	245	166	121	34	18	28	36	112	83	17	35	116	79	54	164	478	407	113	195	14	22	*2,721
Food Adulteration: Proceedings before Magistrates	7	10	11	5	...	...	...	2	...	4	1	1	...	4	1	1	6	14	...	11	2	2	82
Ashpits reported to Cleansing Department for emptying	9	1	3	1	19	2	...	...	10	5	1	...	2	...	...	7	18	5	44	...	7	51	185
Receptacles reported to Cleansing Department for emptying	35	11	21	50	1	2	3	1	7	6	2	...	11	2	7	1	28	36	2	...	...	...	226
Notices issued for Abatement of Nuisances.	966	755	1233	1743	463	180	396	224	627	291	268	111	653	334	253	476	1038	877	201	1	49	54	11,193
Letters written for Abatement of Nuisances	68	23	55	102	3	13	21	9	13	13	3	6	16	5	13	14	28	43	6	2	...	...	456
Reports made to Medical Officer of Health	...	58	21	1	...	4	...	...	...	...	...	...	...	...	...	6	...	3	3	...	...	...	96
Legal proceedings taken	25	34	84	39	1	2	3	2	...	5	...	2	6	2	3	...	26	18	1	...	...	...	†255
Total Nuisances abated	1009	771	1022	1391	454	205	442	191	568	275	242	136	581	360	260	634	952	860	261	...	38	52	10,704
‡ Number of Cottages under Five Rooms...	7435	4964	9037	729	522	923	688	367	4409	2631	1285	402	4552	3510	3221	836	3805	8167	268	909	...	...	...

* 9 Samples procured Outside the City.

† 2 cases Infringement of Canal Boats Acts.

The Midwives Supervising Committee present, for the information of the City Council, the following reports from their officials of the operations carried on in Manchester during 1909 under the Midwives Act, 1902 :—

Statement by the Medical Officer of Health.

The Medical Officer of Health begs to present to the Midwives Supervising Committee the report of their Executive Officer, Dr. Margaret Merry Smith, for the year 1909.

It will be seen that the high standard of work in this department of administration is well maintained. It appears unnecessary to comment on the details further than to call attention to the reduction in the incidence of Puerperal Fever during this year. The General Committee and the Medical Sub-Committee have given the same close attention to the matters requiring administrative action, or involving questions of procedure, which they have bestowed on these in former years.

In the Annual Report on the Health of Manchester for the year 1908, an account was given of the preparation and distribution to all practitioners, and to all known monthly nurses and uncertified midwives, of instructions to monthly nurses.

These are printed as an Appendix to this report. They met with general approval, and a letter was received on June 10th, 1909, from Dr. J. H. Taylor, Hon. Secretary of the Joint Committee of the Manchester and Salford Divisions of the British Medical Association, expressing the satisfaction of the Committee in regard to them, and offering suggestions.

In the same report an account was given of the deliberations of the Supervising Committee on the subject of Ophthalmia Neonatorum, in the course of which it was mentioned that the Committee were of opinion that it is desirable that this condition should be notifiable from all attendants at confinements.

A resolution was accordingly passed by the Sanitary Committee recommending that Ophthalmia Neonatorum should be included amongst the infectious diseases to which the Notification Acts apply. An order was made to this effect by the City Council and communicated to the Local Government Board, who signified their approval.

Ophthalmia Neonatorum became compulsory notifiable on January 1st, 1910.

So far as midwives are concerned the condition had previously been compulsorily notifiable by midwives under the regulations of the Central Midwives Board. The effect of the order was, therefore, to ensure notification from all recognised attendants at confinements. As a result, much more administrative attention has been given to the prevention of injury from this cause.

The Medical Sub-Committee had under consideration the report of the Departmental Committee on the working of the Midwives Act, 1902.

They were unfavourable to the recommendations 2 (*b*) of the summary of recommendations. The recommendations concerned run as follows :—

(1) A secure expectation of payment should be given to a medical practitioner summoned on the advice of a midwife in a case of emergency.

(2) The Poor Law Authority should be responsible for the payment, and should be empowered to charge the fee paid as "relief on loan" to patient.

The Committee considered, *inter alia*, that the other expenses of administration fall on the Supervising Authority, and that the expenditure on fees, which may be made a useful aid to the administrative machinery, should also rest with them.

The following resolution was passed at a meeting of the Midwives Supervising Committee held on September 30th, 1909 :—

"That, in the opinion of this Committee, the fees of medical practitioners called in under the Midwives Act should, as far as practicable, be paid by the Local Supervising Authority, and not by the Board of Guardians."

The Supervising Committee also had under consideration the recommendation of the Departmental Committee in reference to the constitution of the Central Midwives Board, viz. :—

"The number of members should be increased from nine to twelve by giving an additional nominee to the Lord President of the Council, and a representative each to the Local Government Board, the British Medical Association, and the Society of Medical Officers of Health. The member appointed by the Incorporated Institute should in future be a certified midwife instead of a medical practitioner, and the representation of the Royal British Nurses' Association should be discontinued."

The following resolutions were adopted by the Supervising Committee :—

"That, in the opinion of this Committee, the Municipal Corporations' Association should be represented on the Central Midwives Board."

"That a copy of this resolution be forwarded to the Lord President of the Privy Council, the President of the Local Government Board, the Chairman of the Central Midwives Board, and the President of the Municipal Corporations' Association."

Although this subject belongs to 1910, it is convenient to record here that the attendances by medical practitioners in cases to which they have been called in by a midwife, in respect of which a fee will be paid according to scale, have been extended according to the circular appended to this report, and marked Appendix II.

The Medical Officer of Health desires to associate himself with the Supervising Committee in their regret at the approaching loss of the valuable services of Dr. Margaret Merry Smith.

JAMES NIVEN,
Medical Officer of Health.

STATEMENT BY THE EXECUTIVE OFFICER, MARGARET MERRY SMITH, M.B., CH.B., D.P.H. EDIN.

Statistics Relating to Midwives.

The number of midwives who gave notice of their intention to practise in Manchester during 1909 was 158; of these, 36 reside without the City.

The following table (A) gives particulars relating to midwives practising in Manchester, and sets forth their qualifications prior to entry on the Midwives' Roll. It will be seen that more than 68 per cent. are certificated midwives.

It also contains under the separate headings the number of labours attended by midwives, the cases of Puerperal Fever, with other details in relation to these, and the number of withdrawals and suspensions, with the reasons therefor.

DETAILS OF THE WORK OF THE EXECUTIVE OFFICER.

Inspection Visits to Midwives.

341 inspection visits were paid to midwives. In 247 cases the midwife was at home.

The number of instances in which interviews were sought by midwives at the Town Hall was 91.

TABLE A.—PARTICULARS RELATING TO MIDWIVES PRACTISING IN MANCHESTER IN 1909.

Qualification of Midwife.		Bona-fides.	St. Mary's Hospital.	Maternity Hospital.	London Obstetric Society.	Queen Charlotte Hospital.	Liverpool Lying-in Hospital.	Rotunda Hospital.	Central Midwives Board.	Total.	Column.
No. notifying their intention to practise in Manchester in 1909	Resident in Manchester...	34	18	13	25	1	2	...	29	122	1
	Resident outside Manchester...	17	5	2	8	...	...	...	4	36	2
No. removing from Manchester area.....		...	2	1	...	...	...	...	4	7	3
No. given up practice		...	...	...	1	...	...	...	...	1	4
No. who have died.		1	1	2	...	...	...	...	...	4	5
No. suspended *sine die*		1		...	...	...	...	...	...	1	6
No. removed from Roll.....		1	...	...	...	...	...	...	...	1	7
No. of births attended by midwives under the heading given		3012	2015	969	2270	19	233	...	2096	10614	8
No. of cases of puerperal fever attended by midwives under the heading given		16	9	2	7	1	...	...	9	*44	9
Deaths amongst cases of puerperal fever attended by midwives		4	3	...	1	...	...	...	1	9	10
Per cent. of puerperal fever amongst all cases attended		0·53	0·45	0·21	0·31	0·53	...	...	0·43	0·41	11
Per cent. of puerperal fever amongst cases attended by midwives having puerperal fever in their practice		1·34	0·89	0·48	1·39	0·53	...	...	0·77	1·02	12
† No. of suspensions or withdrawal from practice on account of	Puerperal fever	15	9	2	4	1	...	...	8	39	13
	Pemphigus neonatorum ...	...	...	...	1	...	...	...	...	1	14

* In addition to these were three cases attended by midwives in Institutions, and one by a midwife now removed from the Midwives' Roll.

† Four midwives were each suspended or withheld twice, one three times, and one four times.

The routine method of inspection outlined in the report for 1905 was again followed.

1.—Examination of the sanitary condition of the house :

In ten instances defects were referred to the Sanitary Department and action was taken. Six houses were dirty. In each house there was either a fixed or sitz bath ; these were used regularly.

2.—Inspection of the bag of appliances :

The improvement in the equipment of the bags of appliances and in the standard of cleanliness of these noted during previous years was maintained.

In 14 cases the condition revealed on inspection was unsatisfactory. In three cases the contents of the bag were unsatisfactory throughout, while in the other cases they were partially unsatisfactory.

3.—Examination of registers, medical aid record books, notification books, and temperature record books.

Registers.

Entries in registers were on the whole satisfactory. In 11 cases they were badly kept.

Records of calling in Medical Aid.

The improvement in the notification of these records was well maintained, as the figures in Table G show.

Temperature Record Books.

These have been on the whole well kept.

4.—Inspection of washing dresses and aprons.

The midwives possessed an adequate supply of such clothing, and except in one or two cases the clothing worn while in attendance on their patients was clean.

Investigations of the Mode of Practice of Midwives.

The mode of practice of 79 midwives was investigated in the house of the patient throughout the year.

In all, 440 lying-in women were thus visited.

In 17 cases where the investigation was made as part of an ordinary inspection visit, the visits to lying-in women were paid with the midwife. In 136 cases the midwife was not present.

In 4 cases the visits were paid as the result of outside complaints received regarding the work done by some midwives. In 13 cases visits were paid by request of the midwives to view the condition of the house and bedding. In 48 cases the investigation was carried out because the patient developed Puerperal Fever. In 40 cases it was done because the reason given for calling in medical aid was rise of temperature, in 50 cases because of inflammation of the eyes, in 6 cases because of still-births, in 27 cases because of deaths of new-born children, and in 1 case because of the death of a lying-in woman occurring in the practice of a midwife. The other visits were paid in special cases.

In 4 cases the investigation was carried out in connection with the application for medical fees.

Handy Women and Monthly Nurses.—Several visits were paid to them throughout the year. The visits were paid because these women had been in attendance on reported cases of Puerperal Fever. Similar measures of disinfection were carried out as in the case of midwives, and instructions were given as to the precautions to be taken when in attendance on lying-in women.

Puerperal Fever.

84 cases of Puerperal Fever were notified during 1909. 75 cases occurred after confinement, and 9 cases after abortion. The total number of fatal cases was 17.

The day of onset of illness in 49 out of the total 84 cases was on or before the fourth day; in all the cases it was on or before the eighth day. Of the fatal cases, 3 died within the first week after the confinement, 9 within the second; the remaining 5 died within one month.

Notifications of cases were sent in as follows:—44 cases within three days of the onset of the illness, and 76 within seven days. The midwife attended alone at the confinement in 33 cases of Puerperal Fever. In 23 of these the doctor

was called in within 24 hours of the onset of the illness. In 5 cases he was called in on the second day, in 2 on the third day, and in 3 on the fourth day.

In connection with the investigation of Puerperal Fever it was again shown that midwives suffering from septic fingers do not realise the danger of attending lying-in women at such a time. In one of the rapidly fatal cases the source of infection was a superficial whitlow on the finger of the midwife.

The danger of relying too much on the mere form of cleansing and disinfection without carrying out the procedure in a careful and thorough manner was well demonstrated in the following series of cases which occurred in the practice of a young midwife who obtained the certificate of the Central Midwives Board in 1908 after training in hospital :—

> During 12 months she attended 125 cases. Five women developed Puerperal Fever ; one woman died. The cases were not in any way connected, and in no case was there apparently any breach of the rules. Disinfection of the midwife after attendance on these cases was carried out in the usual manner, the disinfection of the hands and bag of appliances being personally supervised each time. Special instruction was also given regarding the precautions which should be taken. After the last case swabs were taken from the midwife's throat and nose, and were examined at the Public Health Laboratory, York Place. Staphylococci were found in the nasal discharge, but were reported to be non-pathogenic. The midwife was withheld from work for short periods on the occurrence of each case, and again on January 28th, 1910, pending the result of the report from the Laboratory. During this time she injured her finger while working at home, developed a paronychia, and on the opposite finger a whitlow. She was allowed to resume work on 2nd March, 1910, and has had no further cases of Puerperal Fever in her practice.

The probable explanation of the series of cases is that the midwife did not carry out the required disinfecting precautions as thoroughly as she should have done, and that she was not careful in the details of her practice. This is borne out by the fact that four of the women were primiparæ—in each case the labour was prolonged and the midwife admitted she had examined several times.

TABLE B.—GIVING IN DISTRICTS FOR 1909 THE POPULATION OF MANCHESTER; BIRTHS AND BIRTH-RATES; CASES, ETC., OF PUERPERAL FEVER; AND THE NUMBER OF MIDWIVES RESIDENT IN EACH DISTRICT.

Statistical Divisions		Population	Births Registered		Cases of Puerperal Fever				1909 Midwives resident in Manchester.
			Number	Rate	Total Attacks	Deaths	Attack rate per 1,000 births	Case Fatality per cent.	
City of Manchester		**654,584**	**18,016**	**27·52**	**84**	**17**	**4·67**	**20·2**	**122**
I. Manchester Township		123,765	3,808	30·77	20	3	5·25	15·0	23
II. North Manchester		202,846	5,549	27·36	30	5	5·40	16·7	31
III. South Manchester		327,973	8,659	26·40	34	9	3·93	26·5	68
I.	Ancoats	43,139	1,397	32·38	9	2	6·44	22·2	3
	Central	24,172	655	27·10	5	..	7·63	..	10
	St. George's	56,454	1,756	31·10	6	1	3·42	16·7	10
II.	Cheetham	43,024	1,160	26·96	4	..	3·45	..	6
	Crumpsall	9,483	203	21·41	1	..	4·92	..	..
	Blackley	9,937	288	28·98	2	..	6·94	..	..
	Harpurhey	24,546	486	19·80	2	..	4·11	..	6
	Moston	22,413	596	26·59	3	1	5·03	33·3	4
	Newton	39,423	1,130	28·66	8	1	7·08	12·5	8
	Bradford	25,503	818	32·07	6	2	7·34	33·3	4
	Beswick	12,679	445	35·10	3	..	6·74	..	1
	Clayton	15,838	423	26·71	1	1	2·36	100·0	2
III.	Ardwick	45,841	1,185	25·85	6	..	5·07	..	8
	Openshaw	29,247	914	31·25	10	3	10·94	30·0	7
	West Gorton	32,699	931	28·47	3	1	3·22	33·3	6
	Rusholme and Kirkmanshulme	27,325	880	32·20	3	1	3·41	33·3	7
	Chorlton-upon-Medlock	55,190	1,180	21·38	4	1	3·39	25·0	15
	Hulme	61,890	2,054	33·19	5	1	2·44	20·0	8
	Moss Side	28,717	590	20·55	..	..	..	..	9
	Withington	47,064	925	19·65	3	2	3·24	66·7	8

Section of Table B giving the number of Midwives resident outside but practising in Manchester.

Salford	10
Failsworth	3
Stretford	6
Gorton	8
Reddish	3
Levenshulme	5
Ashton-on-Mersey	1
Total	36

TABLE C.—SHOWING THE NUMBER OF CASES OF PUERPERAL FEVER OCCURRING WEEK BY WEEK DURING 1909, ACCORDING TO DATE OF ONSET.

1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
Jan. 9	3	April 10	1	July 10	1	Oct. 9	1
16	2	17	–	17	–	16.	1
23	2	24	–	24	–	23	3
30	5	May 1	–	31	2	30	3
Feb. 6	–	8	1	Aug. 7	3	Nov. 6	4
13	3	15	1	14	4	13	1
20	2	22	2	21	–	20	1
27	1	29	3	28	2	27	2
March 6	1	June 5	3	Sept. 4	1	Dec. 4	1
13	1	12	2	11	1	11	3
20	2	19	2	18	2	18	1
27	2	26	3	25	2	25	3
April 3	–	July 3	–	Oct. 2	–	Jan. 1	–
TOTAL	24		18		18		24

TOTAL—84.

TABLE D.—RELATING TO THE CASES OF PUERPERAL FEVER ATTENDED EITHER BY MIDWIVES OR DOCTORS DURING THE YEARS 1905, 1906, 1907, 1908, and 1909.

Year	Number of cases attended by							
	MIDWIVES		DOCTORS		MIDWIFE AND DOCTOR		TOTAL	
	Attacks	Deaths	Attacks	Deaths	Attacks	Deaths	Attacks	Deaths
1905	41	11	31	11	10	3	82	25
1906	32	6	54	20	17	4	103	30
1907	35	4	39	9	21	7	95	20
1908	37	7	50	13	14	4	101	24
1909	33	7	34	5	15	5	84*	17

* Includes two cases unattended

TABLE E.—SHOWS WHERE PATIENTS SUFFERING FROM PUERPERAL FEVER WERE TREATED, AND THE RESULTS OBTAINED, IN 1909.

Cases treated at	Total No. of Cases	No. Recovering	No. of Deaths	Case Mortality per cent.
Monsall Hospital	47	37	10	21·3
Home	25	20	5	20·0
Other Institutions	12	10	2	16·7
Total.....	84	67	17	20·2

TABLE F.—SHOWING FOR CASES OF PUERPERAL FEVER THE CHARACTER OF THE LABOUR AND THE RESULTS FOR 1909; ALSO THE CLASSIFICATION OF ABNORMAL CASES, AND CASES IN WHICH PERINEAL TEAR WAS STATED TO BE PRESENT.

	No. of Cases	Recovery	Death
Normal full term labour	55	42	13
Abnormal full term labour.....	20	17	3
Abortion	9	8	1
Abnormal Labour.			
Forceps	12	11	1
Adherent placenta manual removal	1	0	1
Placenta prævia	3	2	1
Ante and post partum hæmorrhage	3	3	..
Version	1	1	..
Perineal tear stated to be present.			
Labour normal	6	4	2
Abnormal	8	8	..

Records of calling-in Medical Aid under Rule E 19 of the Central Midwives Board, and Payment of Fees in connection therewith.

During the year 1909, the number of medical records received was 1,961, as compared with 1,634 in the previous year. 1,141 of the records were for cases occurring in the private practice of midwives, whilst 820 were in connection with the various lying-in charities. The corresponding figures for 1908 were 1,151 and 483 respectively. Medical aid has been advised more frequently in cases of perineal tear and of feeble and premature children.

As usual, enquiries were made into every case where the medical practitioners had been called in because of rise of temperature, quickened pulse rate, rigor, foul-smelling discharge, or other symptoms of Puerperal Fever.

Enquiries were also made into most of the cases where inflammation of the child's eyes was reported.

The records are classified in the following table under the various causes for which medical aid was sought. (See Table G on next page.)

As regards the payment of fees to medical practitioners, under the scheme outlined in the report for 1905, 342 applications were received during the year. These were considered by the Medical Sub-Committee, and they recommended that payment should be made in 282 cases, amounting to £287 6s. od. Of the 60 cases which were rejected as not fulfilling the conditions, in 40 instances the income was above the scale, whilst 15 did not fulfil in various respects the conditions under which the fee is paid. One duplicate application was received, and four were referred to the Boards of Guardians.

Still-births.

The total number of still-births during 1909, of which there is any return, was 775, as compared with 888 in the previous year.

TABLE G.—NUMBER OF CASES OCCURRING IN 1909 IN WHICH THE MIDWIFE ADVISED THAT A REGISTERED MEDICAL PRACTITIONER SHOULD BE SENT FOR (RULE E 18) AND ALSO THE NUMBER OF APPLICATIONS FROM MEDICAL PRACTITIONERS FOR PAYMENT OF THEIR FEES FOR ATTENDING CERTAIN EMERGENCY CASES.

Period	Medical aid called in on account of the following causes, as stated by the Midwife		Total	Private Cases	Hospital outdoor cases	Application for † Fees
Pregnancy	Abortions, miscarriages		29	17	12	2
	Deformed pelvis		..	..	..	..
	Loss of blood		9	8	1	..
	Other unusual features of pregnancy		19	16	3	..
Labour	Presentations	Head — Occipito posterior	12	11	1	27
		Head — Brow	3	2	1	6
		Head — Face	25	19	6	16
		Head — Abnormal	3	1	2	1
		Breech — In primiparæ	8	7	1	..
		Breech — In multiparæ	1	1	..	..
		Breech — Para not stated	37	28	9	6
		Knee	1	1	..	..
		Foot	11	5	6	3
		Hand or arm	10	7	3	7
		Transverse	19	17	2	14
		Funis	23	12	11	6
		Placenta Prævia	16	15	1	12
	Tedious labour	Unable to make out	13	5	8	1
		Forceps used	19	19	..	101*
		No record as to forceps	362	264	98	9
	Placenta	Retained	47	21	26	11
		Adherent	29	25	4	14
	Membranes retained		71	20	51	9
	Rupture of perineum		251	125	126	32
	Hæmorrhage	Ante partum or accid.	66	41	25	12
		Post partum	59	34	25	16
	Convulsions		12	9	3	2
	Complications		50	23	27	7
	Others		7	6	1	8
	Premature labour		26	24	2	1
Lying-in	Abdominal swellings		..	..	..	..
	Foul-smelling discharges		..	..	..	..
	Post partum hæmorrhage		1	..	1	..
	Rigor		3	3	..	..
	Rise of temperature above 100·4° F.		69	41	28	12
	Unusual swelling of breasts		6	2	4	..
	Progress unsatisfactory or complications		133	51	82	1
Newly-born Child	Injuries received during birth		3	1	2	..
	Obvious malformations		41	17	24	..
	Tongue tied		9	8	1	..
	Feebleness of Child		111	76	35	2
	Inflammation of eyes, eyelids, and ears		78	21	57	1
	Skin eruption		9	4	5	..
	Illness from prematurity		153	74	79	3
	Malignant jaundice		18	14	4	..
	Inflammation about the umbilicus		2	..	2	..
	Unspecified or complications		87	46	41	..
	TOTALS		1,961	1,141	820	342

* In addition to the 101 cases of tedious labour in which forceps were used, instrumental aid was also required in 58 of the other cases of labour.

† These applications have been classified according to the conditions requiring treatment found by the medical practitioner.

This number includes 483 still-births which occurred in the practice of doctors, and 292 which occurred in the practice of midwives. The numbers for 1908 were 539 and 349 respectively.

Through the Cemeteries' return, 669 still-births were notified; 483 of these were doctors' cases, and 186 midwives' cases. 106 still-births attended by midwives were notified by them alone in addition to the 186 cases returned by the Cemeteries, and also notified by them. The midwives have been requested, when notifying a still-birth, to state, if possible, the place of burial. This was given in 272 instances, leaving 20 unaccounted for.

The still-births have been classified in districts; those occurring in the practice of doctors and midwives are shown in separate columns.

This classification shows the percentage of live and still-born children, and the still-birth rate. The still-birth rate is calculated on the returns from midwives, as these returns are very complete.

It will be seen that the percentage of still-born children is 3·6; in 1908 it was 3·9, and the still-birth rate 0·45 per 1,000 of the population in midwives' practice.

The districts in which the still-birth rate is highest are Bradford, Beswick, Hulme, St. George's, Moss Side, Ancoats, Openshaw, and Ardwick. These are given in order, beginning with the district in which the still-birth-rate is highest. (See Table I on next page.)

TABLE I.—TOTAL NUMBER OF BIRTHS REGISTERED IN 1909; ALSO THE NUMBER OF STILL-BIRTHS OCCURRING IN THE PRACTICE OF MEDICAL PRACTITIONERS AND MIDWIVES, AS OBTAINED FROM THE RETURNS OF BURIALS AT VARIOUS CEMETERIES.

Statistical Divisions	Births Registered	Still-births Classified from Cemetery Returns		Proportion Per Cent.			Total Still-births notified by Midwives	Still-birth-rate per 1,000 of the Population in the practice of Midwives	Total Still-birth-rate return from Cemeteries
		Doctors' Cases	Midwives' Cases	Born Living	Still-born				
					Doctors' Cases	Midwives' Cases			
City of Manchester	**18,016**	**483**	**186**	**96·4**	**2·6**	**1·0**	**292**	**0·45**	**1·02**
I. Manchester Township	3,808	97	56	96·1	2·5	1·4	83	0·67	1·24
II. North Manchester	5,549	136	45	96·8	2·4	0·8	74	0·36	0·89
III. South Manchester	8,659	250	85	96·4	2·8	0·9	135	0·41	1·02
I. Ancoats	1,397	39	15	96·3	2·7	1·0	24	0·56	1·25
I. Central	655	13	6	97·2	1·9	0·9	17	0·70	0·79
I. St. George's	1,756	45	35	95·6	2·5	1·9	42	0·74	1·42
II. Cheetham	1,160	29	4	97·3	2·4	0·3	9	0·21	0·77
II. Crumpsall	203	7	1	96·2	3·3	0·5	1	0·11	0·84
II. Blackley	288	9	1	96·6	3·0	0·3	6	0·60	1·01
II. Harpurhey	486	19	2	95·9	3·7	0·4	10	0·41	0·86
II. Moston	596	9	1	98·3	1·5	0·2	3	0·13	0·45
II. Newton	1,130	23	6	97·5	2·0	0·5	10	0·25	0·74
II. Bradford	818	21	20	95·3	2·4	2·3	19	0·75	1·61
II. Beswick	445	14	6	95·7	3·0	1·3	10	0·79	1·58
II. Clayton	423	5	4	97·9	1·2	0·9	6	0·38	0·57
III. Ardwick	1,185	32	21	95·7	2·6	1·7	29	0·63	1·16
III. Openshaw	914	26	9	96·4	2·7	0·9	14	0·48	1·20
III. West Gorton	931	10	2	98·8	1·0	0·2	6	0·18	0·37
III. Rusholme and Kirkmanshulme	880	15	1	98·3	1·6	0·1	11	0·40	0·59
III. Chorlton-upon-Medlock	1,180	40	5	96·3	3·3	0·4	15	0·27	0·82
III. Hulme	2,054	56	36	95·7	2·6	1·7	48	0·79	1·49
III. Moss Side	590	33	5	94·0	5·2	0·8	6	0·21	1·32
III. Withington	925	38	6	95·6	3·9	0·6	6	0·13	0·93

Midwives Reported to the Central Midwives Board on Charges of Malpractice, Negligence, or Misconduct.

During the year the Midwives Supervising Committee, in considering the various reports submitted to them, decided that *prima facie* cases of negligence or misconduct had been established against three midwives, and reports respecting these were forwarded to the Central Midwives Board.

The following are the charges on which such action was based :—

1.—Midwife A failed to notify her intention to practise as required by Section 10 of the Midwives Act, although she attended five confinements. Legal proceedings were taken in respect of this, and she was fined 21/- and costs. She was also under suspension on the ground that she did not possess the necessary appliances. She failed to notify having advised calling in medical aid in two cases and failed to notify two still-births. She had previously been convicted for fortune-telling. Her name has been removed from the Midwives' Roll.

2.—Midwife B failed for six days to advise calling in medical aid for a woman whose progress was unsatisfactory from the third day. She then failed to notify having so given that advice. She used the appliance carried by her for giving enemas to give vaginal injections in a case which developed puerperal fever and died. Whilst in attendance on this patient she had a purulent blister on her finger The Central Midwives Board found the charges proved, but postponed sentence pending a further report on her conduct and methods of practice. This report was not satisfactory, and her name was removed from the Midwives' Roll on 21st April, 1910.

3.—Midwife C failed for four days to advise calling in medical aid for a woman suffering from rigors, headache, sleeplessness, feverishness, and delirium. Subsequently, although she knew this woman had puerperal fever, she attended another woman in labour without having carried out disinfection ; the latter woman developed puerperal fever. Her name was removed from the Midwives' Roll on 21st April, 1910.

Legal Proceedings.

In addition to the case mentioned above (Midwife A), legal proceedings were taken under Section 10 of the Midwives Act, 1902, against a midwife for practising without notifying to the Local Supervising Authority her intention so to do. She was fined 20s. and costs.

Death of Mother.

One notification was received of the death of a mother before the attendance of a medical practitioner could be obtained. An inquest was held, the verdict being "Death from Heart Disease."

Deaths of New-born Children.

Notifications of 41 deaths of new-born children have been received, and of these 27 were investigated.

Enquiries were made by the City Coroner into the causes of these deaths. In 31 instances inquests were held, and 10 were returned as uncertified.

The causes of death were given as follows :—

	Inquest cases.	Uncertified deaths.
Accidental suffocation	17	0
Atelectasis	1	0
Premature birth	0	10
Want of attention at birth ..	6	0
Hæmorrhage	3	0
Accidental drowning	2	0
Congenital defects	2	0
	—	—
	*31	10

* Post-mortem examinations were made in 28 cases.

The districts in which these deaths occurred were:—Ancoats and Ardwick, 6 each; Beswick, 5; Hulme, 4; Central, St. George's, and West Gorton, 3 each; Cheetham, Crumpsall, Bradford, and Rusholme, 2 each; Blackley, Newton, and Openshaw, 1 each.

General Remarks.

The work done by the midwives during the year has on the whole been good. They continue to display interest in it, and in the main loyally to co-operate with the Local Supervising Authority in the administration of any new requirements.

During the year an attempt was made to visit all cases where medical aid was called in on account of inflammation of the eyes. In most cases this was done, and the necessity of proper care of the eyes of the child at birth, and of placing it at once under medical care when any sign of inflammation occurred, was demonstrated.

During the first two months of 1910, all cases, whether notified by doctors under the Notifications Diseases Act—Ophthalmia Neonatorum became compulsorily notifiable in Manchester in 1910—or by midwives, were investigated by me, but later only special cases and investigations were undertaken, the Sanitary Inspectors carrying out the routine investigations in all cases. As the result of these investigations, it has been shown that midwives must be warned against over interference with the eyes, and instructed to cleanse only the external surface of the lids either during birth or later, and to use for this purpose boracic lotion only. Should inflammation of the eyes occur, the child should at once be placed under medical care, and the midwife should not attend to the eyes at all.

An interesting outbreak of Pemphigus Neonatorum occurred in the practice of one of the midwives in March and April, 1909, full particulars of which were published in the *British Medical Journal* for week ending 22nd January, 1910, page 198.

There were four cases, three of which were fatal. The midwife attended seven other lying-in women during this time, none of whose children developed the disease.

In all cases the mothers did well, and there was no history of sepsis. There was no infection of other members of the household. The original source could not be traced. So far as could be ascertained, syphilis did not play any part in the disease, and no information was obtainable that the midwife had any septic illness.

The attention of the midwives was drawn to the danger of this disease, and the importance of notifying at once if its occurrence was suspected.

Four isolated cases have since been reported. One died, the others recovered. In two of the cases which recovered, members of the household who had been handling the new-born child had septic sores.

The inclusion of the districts of Gorton and Levenshulme in November, 1909, has considerably extended the area of inspection. The poverty of many of the people in the part of Gorton adjoining West Gorton, and the lack of charity agencies, makes the maternity work particularly arduous.

There is much need of an organised effort to educate the parents in home management and infant care in this district, and in the districts of West Gorton, Bradford, and Clayton. They will not realise the importance of securing skilled maternity care until this is done, and will not employ careful midwives or carry out their instructions.

During 1909 no systematic lectures were given, but in the beginning of 1910 two sets were given, which were similar to those outlined in the report for 1906. Special attention was paid to the rules dealing with the care of children, as the important part played by midwives in the prevention of infantile mortality always requires to be brought under their notice.

The attendance was again good, the number who attended one or more of the addresses was 68. The average attendance was 16.

There is in one or two districts a shortage of midwives, but it is not serious, and will automatically right itself by young women from that or other districts undergoing training and settling there.

Since the beginning of 1909 several midwives who had always done their work conscientiously and well have died. They are a great loss to the community. The cause of death was in four cases Pneumonia, and in the fifth Typhoid Fever.

The Midwives Act has now been actively administered in Manchester for over five years. It is, of course, impossible as yet to estimate fully the result or to make use of much of the information which has been tabulated, but there is no doubt that great practical benefit to lying-in women and new-born children has resulted, and that scientifically the accumulation of recorded facts should later become very valuable.

The education of the midwives, which has taken place under the new requirements, has resulted in a more careful habit of work and higher standard of responsibility towards their patients.

The patients have felt the benefits of this increased care ; resisting at first the demands for cleaner clothing and cleaner personal habits, they have at last yielded, and have attempted to meet it and to carry out the instructions given to them regarding infant care.

The very poor lying-in women in the Central districts of the City are now sure of skilled care and attendance from the midwives working directly in connection with St. Mary's Hospitals. The poorer women throughout the City who require medical aid at the time of the labour, and who cannot pay for it, have the doctor's fee paid by the Corporation after due enquiry. In some districts Schools for Mothers are established, where pregnant women and nursing mothers can obtain meals at a very small charge and instruction in infant care.

The midwives voluntarily notify live births occurring in their practice, which information is of great value in enabling the health visitors to follow up cases immediately the midwife has ceased attendance. Midwives and health visitors have worked harmoniously with very beneficial results.

It is stimulating to realise that such an improvement has taken place, and thanks are due to all the midwives who have done their best to help in bringing about this result. They have to carry out their duties under exceptionally trying circumstances, and in most cases deserve great credit for the results obtained.

On behalf of the Committee,

A. W. CHAPMAN,

Chairman.

Town Hall, Manchester,
7th July, 1910.

APPENDIX I.

Public Health Office,

Town Hall, Manchester,

February, 1909.

Instructions to Monthly Nurses.

The Midwives Supervising Committee of the Manchester Corporation, believing that a few hints and instructions on the care of women in child-birth will be welcomed by those who practise as Monthly Nurses, have drawn up the following rules for their guidance :—

I.—General Remarks.

(1) Persons who act as monthly nurses should be trained and qualified.

(2) Women who are suffering from festering fingers, sore throats, or discharging sores of any kind must not attend lying-in patients.

(3) Women who have been in attendance on lying-in patients who have been suffering from Puerperal Fever must not attend another case until thorough disinfecting precautions have been taken. They should seek advice from the Medical Officer of Health as to the precautions which they must take before resuming work. All disinfection required will be carried out by the officers of the Corporation free of charge.

(4) All monthly nurses should take a bath and put on an entire change of clean clothing before going to a patient. Especial care should be taken to clean the hands and nails, which last should be well scrubbed with soap by means of a clean brush in a solution of Izal (one tablespoonful to a quart of water), and afterwards in a solution of perchloride of mercury (one pellet to a pint).

(5) The first duty of the nurse is to attend to the comfort and care of her patient, and to the condition of the lying-in room, which should be thoroughly clean. Unnecessary articles should be removed. There should be a good light. and, in cold weather, a good fire.

(6) She is to see that her patient is thoroughly clean, also to see to the cleanliness of the body linen and bed. It is advisable that the patient should have had a bath, paying special attention to the cleansing of the nipples.

(7) She is not to give stimulants without special instructions from the doctor.

II.—Before the Arrival of a Doctor.

(1) The nurse should arrange the bed, and should place macintosh sheeting, or, if that be not obtainable, clean, glazed, brown paper, over the under sheet, and on the macintosh or brown paper a draw sheet.

(2) At the onset of labour it is advisable to give a warm water enema to empty the lower bowel, and to thoroughly wash with warm water and soap the lower part of the body, paying special attention to the private parts and to the folds of the groins, then swab the private parts with Jeyes' fluid or Izal mixed with clean warm water in the proportion of one tablespoonful to a quart.

(3) On no account make any internal examination of the patient or use a syringe or douche except for the bowel.

(4) If the nightdress is clean and unsoiled, draw it up under the armpits, and pin it there. Fasten a clean petticoat loosely round the waist, so that when labour is over it can be easily slipped off.

(5) See that there is a plentiful supply of boiling, also of clean cold water, and two or three empty clean small basins.

(6) Have the binder and napkins in readiness, and hung before the fire.

(7) Keep the patient in bed if the pains are strong and frequent.

III.—After the Child is Born.

(1) Always, before changing the napkins or cleansing the patient, thoroughly wash your own hands with hot water and soap, and scrub the nails well with a nailbrush, using any disinfectant which may be ordered by the doctor.

(2) In cleansing the external parts of the patient use boiled water with any disinfectant ordered by the doctor. Pay particular attention, also, to the folds of the groins, and be very careful that no motion from the bowel gets near the private parts. Always cleanse from the private parts towards the back, never from the seat towards the private parts. The cleansing should be done morning and evening, and always after the bowels act.

(3) In cleansing, a sponge must not be used, but clean napkins or clean linen rags which have previously been boiled.

(4) If a sheet be at all soiled with discharges or blood it must be removed, and replaced by a clean one. This applies also to the patient's body linen.

(5) Keep the patient quiet, and allow no visitors unless with the doctor's permission.

(6) The nurse should provide herself with a clinical thermometer, and take the temperature of the patient morning and evening, and record it.

(7) Always be on the look-out for the least smell or anything unnatural about the discharges, and inform the doctor, but on no account use a douche without express instructions.

(8) The patient's nipples must be kept thoroughly clean, and the child put to the breast at regular intervals.

(9) In washing the baby, first cleanse the eyes, nose, and mouth with clean water without soap.

(10) Always inform the doctor of anything unusual about either mother or child, or of any special action which has been taken in his absence.

IV.—When the Child is born before the Doctor's Arrival.

(1) Sponge the baby's eyes, nose, and mouth with clean boiled water.

(2) If it does not cry, slap the back and chest with the corner of a wet napkin, and see that its mouth and nose are uncovered.

(3) If the baby has been born more than 15 minutes, tie the cord firmly twice with clean thread, about a hand breadth from the navel, and cut it with scissors between the two tyings.

(4) Do not pull the cord or make any attempt to remove the after-birth before it has been completely expelled into the bed.

(5) If, unfortunately, the baby is born on the floor, tie and cut the cord as directed, take the baby away, and then lift the mother on to the bed without interfering with the after-birth.

Any person who undertakes the responsibility of nursing a woman in child-birth should remember the supreme importance of cleanliness.

Puerperal Fever and death may follow the neglect of these precautions.

APPENDIX II.

Public Health Office,

Town Hall, Manchester,

28th April, 1910.

Midwives Act, 1902.

Revised Statement of Payment of Fees to Medical Practitioners.

Subject to the conditions set forth in the letter of May, 1906, contained in the book of application forms, being complied with, the following fees will be paid :—

In the case of a woman in labour, a fee of £1 1s. will be paid for emergencies numbered 1 to 6, and in addition for secondary post-partum hæmorrhage.

(1) A malpresentation.

(2) Presentation other than the uncomplicated head or breech.

(3) Where no presentation can be made out.

(4) Where there is excessive bleeding.

(5) Where two hours after the birth of the child the placenta and membranes have not been completely expelled.

(6) In cases of rupture of the perinæum or of other injuries of the soft parts.

(7) Secondary post-partum hæmorrhage.

A fee of 5s. will be paid for the following emergencies during the lying-in period. If the case is diagnosed Puerperal Fever, a total fee of £1 1s. will be paid :—

(8) Abdominal swelling and tenderness.

(9) Offensive lochia, if persistent.

(10) Rigor, with raised temperature.

(11) Rise of temperature above 100·4° F., with quickening of the pulse for more than 24 hours.

A fee of 5s. will be paid for attendance on cases of :—

(12) Purulent discharge during pregnancy or at the time of labour.

A fee of 2s. 6d. will be paid for medical aid rendered to the new-born child between the hours of 9 a.m. and 9 p.m., and 5s. for such aid between 9 p.m. and 9 a.m., for :—

(13) Injuries received during birth.

(14) Malformation or deformity.

(15) Dangerous feebleness.

(16) Prematurity.

(17) Convulsions.

These payments will only be made in all the foregoing circumstances where the income of the family does not exceed the following rate :—

	s.	d.	
Man and wife	21	0	per week.
Parent or parents and 1 child	23	0	,,
,, ,, 2 children	25	0	,,
,, ,, 3 ,, ...	27	0	,,
,, ,, 4 ,, ...	29	0	,,
,, ,, 5 ,, ...	30	6	,,
,, ,, 6 ,, ...	32	0	,,
,, ,, 7 ,, ...	33	0	,,

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